

MAY 15, 1999

SECTION ONE
174 PAGES IN TWO SECTIONS

United States \$8
Belgium BFr287
France Fr47
Germany DM14
Italy L13,790
Japan ¥949
Netherlands G16
Spain P1,185
Switzerland SFr11
United Kingdom £5

CIO

THE MAGAZINE FOR INFORMATION EXECUTIVES

CIO starter kit

10

Tools for the
First Year
On the Job

PAGE 38

ALSO INSIDE

**How To Lead Pilot
Projects That Deliver**

PAGE 66

**Why Your Call Centers
Should Be Less Efficient**

PAGE 54



New Xerox CIO Gary Banks and
seasoned pros share their tools
to make the first year a success



Portability.



Style. Never before has a computer so elegantly streamlined offered such formidable power. Presenting Portégé™ 3020CT. A sculpted sliver of magnesium-alloy casing. Concealing the greatest capabilities Toshiba has ever offered in a portable this compact. It's the executive privilege with a very practical purpose.



Size. It's the ultimate traveling companion. Barely three-quarters of an inch thin. Under 3 lbs. light. Portégé 3020CT travels discretely wherever you go, yet it offers features like a full-sized keyboard and a generous 10.4" TFT active matrix display.



The perfect balance.

Performance.



Power. Portégé 3020CT is ready for virtually anything. An Intel® Pentium® processor with MMX™ technology, 300MHz. A 6.4 billion-byte hard drive. 32MB of high speed EDO DRAM and a 128-bit NeoMagic™ graphics controller. Plus a 56K modem.



Expansion. The possibilities are endless. With an optional lightweight battery, two PC Card slots, an optional PC Card 24X* CD-ROM and standard port expander. It's the ideal balance of portability and performance. Call 1-800-TOSHIBA or click on www.toshiba.com.

TOSHIBA

The World's Best Selling Portable Computers.



Microsoft® Certified Solution Providers are trained experts on Microsoft products, although a few do go AWOL when it comes to actually suggesting them. MCSPs have battle-tested Microsoft product expertise, which helps them make informed decisions for their clients. In fact, the reason MCSPs take part in Microsoft beta testing and receive copies of every Microsoft product

is to learn them inside and out. All of which means that, when they're called upon to help a client determine the best solution for a given problem, MCSPs will know whether Microsoft products are the right stuff. Or whether it's time to break ranks and recommend something else. To find an MCSP who can deliver the right solution for you, visit www.microsoft.com/certified



Features

38 The CIO Starter Kit

COVER STORY: CAREER MANAGEMENT Ten tools every new CIO needs to succeed. *By Mindy Blodgett*

54 Holding Patterns

CUSTOMER SERVICE Call centers can be poked and prodded to provide maximum efficiency. But will it cost you your customers? *By Derek Slater*

66 Prepare for Takeoff

PROJECT MANAGEMENT Think you know how to run a pilot project? Before you crash and burn, think again. Better yet, follow our checklist. *By Christopher Koch*

Columns

32 Cold Shoulder in a Hot Market

EXECUTIVE COUNSEL Everyone says the IT job market is so hot that anyone with the right skills can get a senior-level job. Everyone may be wrong. *By David Rosenbaum*

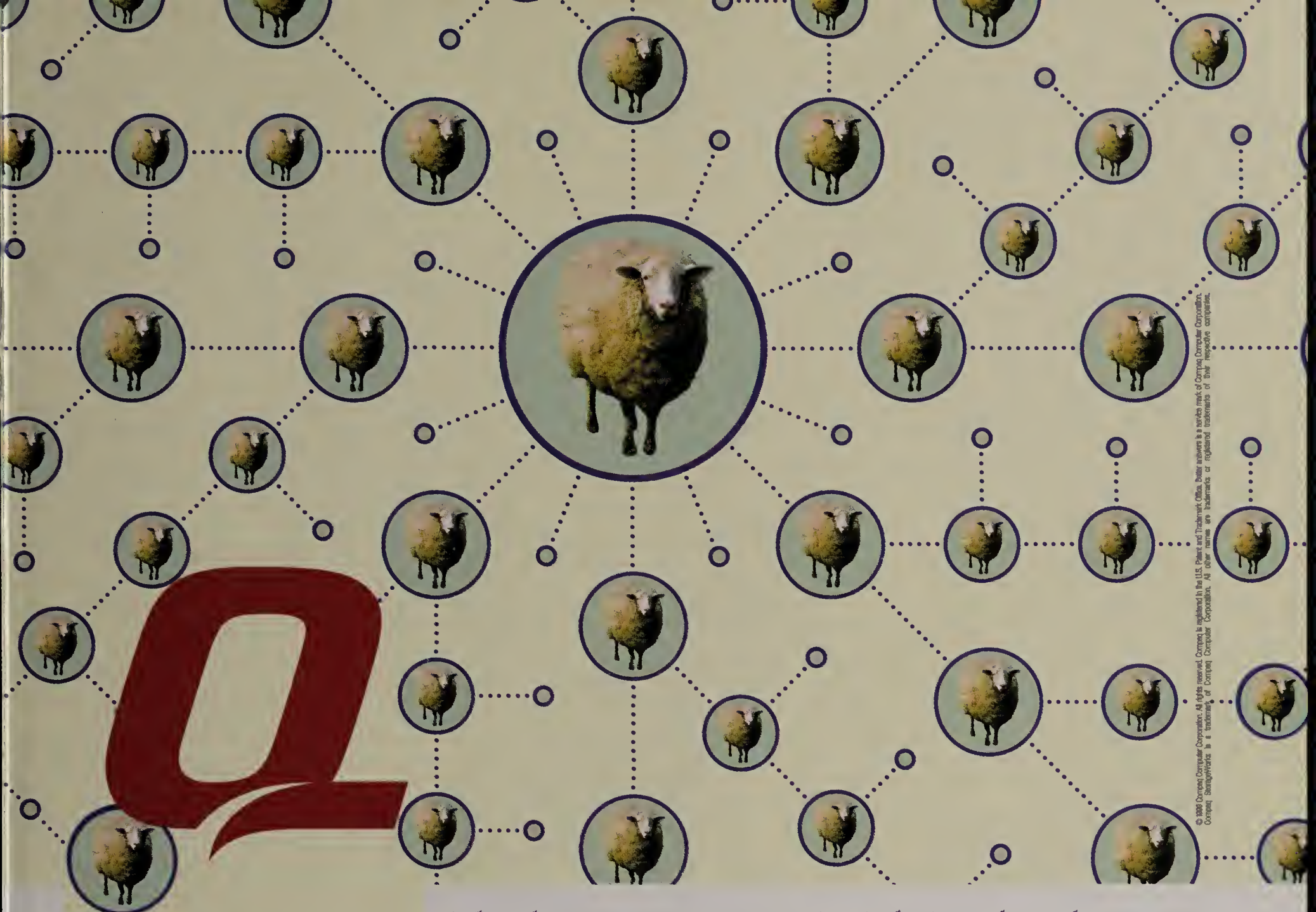
MORE ►►►

ON THE COVER

Get your CIO career
started on the right foot.

Cover photo by Fernald/Gray
Cover illustration by Dale Stephanos





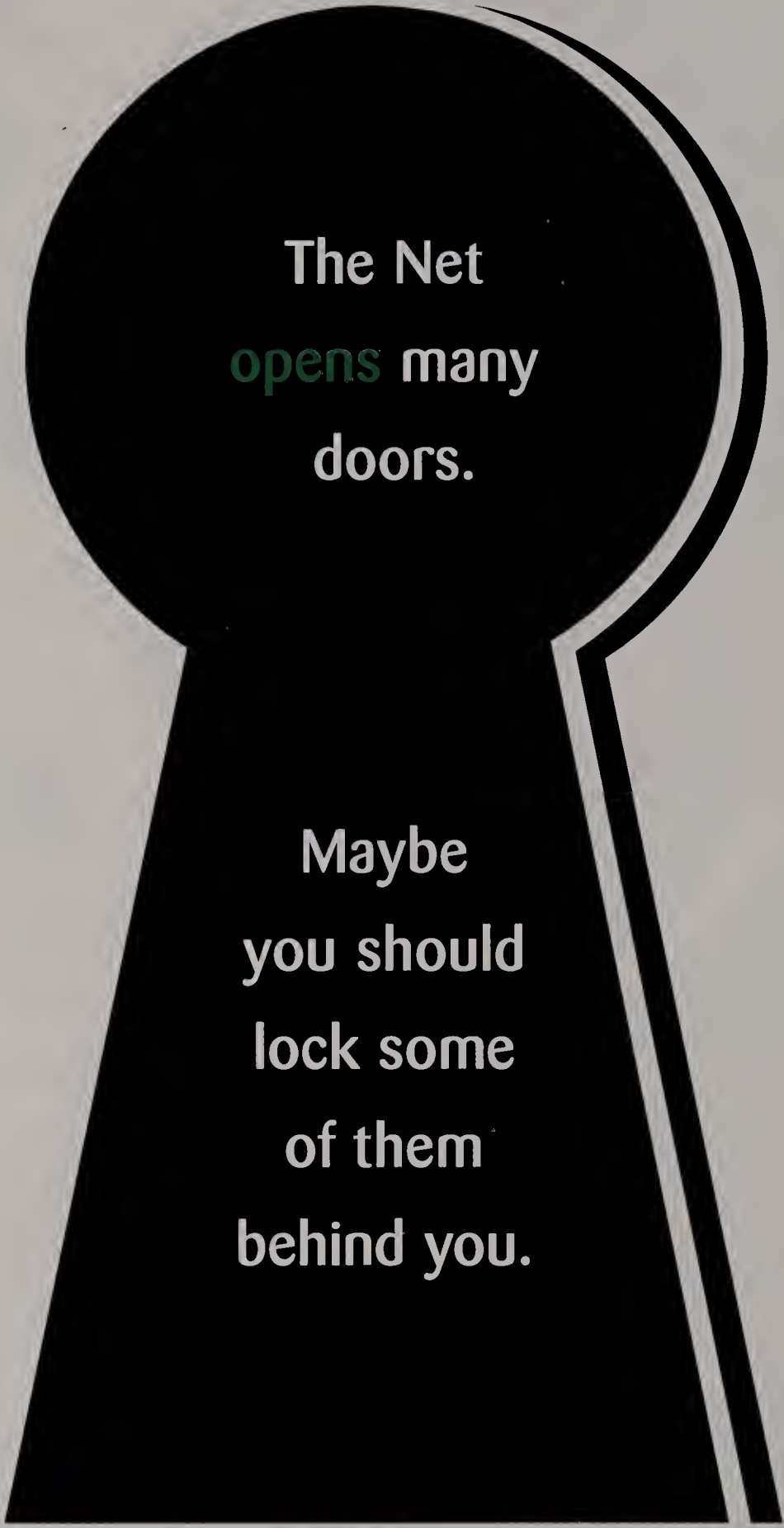
When my data multiplies like crazy, will I be able to handle it?

The data in your enterprise is being cloned more rapidly than sheep are, these days. And the growth of the Internet is taxing your storage system even more. That's why you need a storage system that grows right along with it. Compaq StorageWorks™.

Designed with our open, standards-based Enterprise

Network Storage Architecture, it gives you a modular storage solution that expands with your enterprise. And this architecture virtualizes storage—working across multiple platforms while being centrally managed from one location. So information can be shared by anyone anywhere in your enterprise. For answers to all your questions about multiplying data, contact 1-800-STORWORK or www.compaq.com/yourdata.

COMPAQ Better answers.™



The Net
opens many
doors.

Maybe
you should
lock some
of them
behind you.

CONSULTING • TAX • ASSURANCE

Information
is a valuable asset. But only if it
gets into the right hands. Our network of
knowledgeable people can help you keep your
network and web sites secure. So you can feel
confident knowing that those things that
should be kept private, are. Boot up.

www.ey.com



20

Columns *(continued)*

72 **Fighting Fragmentation**

FORRESTER VIEW Avoid inconsistency that alienates customers. *By Bob Chatham*

78 **A Change of Interface**

EMERGING TECHNOLOGY Speech recognition fosters better customer service through self-service.

By Bill Roberts

Plethora of portals • Wireless Ethernet •
Rollback software • Programming with Dylan •
Pen computers

88 **Abbott Laboratories' Lee Jones**

SHOP TALK The challenge of being a nontechie CIO.
By Christopher Koch

In Every Issue

12 **In Box**

Letter from the editor, reader feedback and how to reach us • On our Web site

16 **Publisher's Note**

20 **Trendlines**

Hot Times in Silicon Wadi • Sharpen Your Pencils! •
Off the Shelf • The War Goes On • X-Raying the
Enterprise • The Total Computing Environment •
Hot Skills and Good Works

86 **Index**



*Enterprise Value Awards
application follows
Page 68.*

78



Inside Section 2

COVER STORY: TECHNOLOGY ROI

CEOs don't expect too much from technology investments: just tangible business benefits at bargain-basement prices.

NEW PRODUCT DEVELOPMENT

Where serious fun is the root of innovation.

INNOVATION Companies that encourage breakthrough research understand that innovation means more than designing the perfect fly swatter.

KNOWLEDGE MANAGEMENT Consultants clamor for companies' attention and KM dollars. But who's offering what?

REALITY BYTES E-mail's voluminous indiscretion.

HANDSHAKE Technology helps Jiffy Lube with its first priority—bringing customers back.

INTELLECTUAL CAPITALISM Product and service ideas that fade to commodities can flower again.

LEARNING CURVE ERP aims to be the backbone for your whole business.



Board Chairman PATRICK J. MCGOVERN

President KELLY CONLIN

Chief Operating Officer JAMES CASELLA

HARDWARE.

SOFTWARE.

AND FINALLY,

POWERWARE.

Formerly Exide Electronics

Clean, dependable power is an increasingly critical part of the information technology system. Luckily, there is a power management and power protection solution that ensures the availability of your essential systems.

Introducing Powerware. It's not just our name; it's what we do. And we do it better than anyone else. Powerware (formerly Exide Electronics) is a global leader in providing total UPS solutions for every hardware and software application, from the largest enterprise-wide networks to desktop computers.

Powerware products are backed by the most advanced software, giving you unmatched control and predictability.

And only Powerware provides unsurpassed on-site service and support. Today, Powerware takes its place beside software and hardware. Because ensuring reliable power is as crucial as the technology it serves.

To learn more about how to keep your systems up and running, call us toll-free at 877-PWRWARE (877-797-9273). Or visit our Web site at **www.powerware.com**.


POWERWARE[®]
POWERING THE WORLD



Anyone can get info
network. The trick



A bottleneck is a bottleneck. And a SAN solution that doesn't make information access easy, isn't very smart. That's why StorageTek's SAN solutions have intelligence built right in to the network. Our Virtual Intelligent Storage Architecture (VISTA) guarantees you an *open, intelligent and integrated*™ SAN. One that makes getting information out as easy as getting it in. For an intelligent SAN solution, visit us online at: www.storagetek.com/easy

Information into a storage
is getting it out.

INFORMATION *made* POWERFUL™



STORAGETEK™

In Box

LETTER FROM THE EDITOR, READER FEEDBACK
AND HOW TO REACH US

**"Mergers and acquisitions are an interesting sign
that we're out of ideas."** —David Robinson, Arthur D. Little

A provocative statement, and one that seems almost ludicrous given the times we live in, with so many things now possible that were never possible before.

Certainly, many organizations are struggling to think and act beyond their traditional frameworks. The problem is not that we're out of ideas but rather that our ideas aren't radical enough and we don't act on them boldly enough. In times of such major shifts in market forces, we must learn how to both foster and apply new and radical thinking.

Some companies are trying to buy their way out of this quandary (the point of David Robinson's quote above). But growth through acquisition is a delaying tactic at best. As a result, one of the top agenda items for CEOs these days is Innovation with a capital I.

Innovation for most established companies requires a tremendous shift in focus in everything from how the company is organized and staffed to how products are devel-

oped and sold. All the energy that has gone into the efficiency and quality movements has got to be harnessed and repurposed to innovation.

Think about that for a minute. The management frameworks needed for efficiency and innovation are about as opposite as they can be. And the companies that need innovation most—those that are really on the ropes—are the worst equipped to pull it off. "The hunkered-down company is not going to produce breakthroughs," says Robinson.

Innovation needs space to think, freedom to take risks, empowerment to act, license to have fun: traits not generally present when times are tough. On the other hand, organizations *in extremis* do have at least one advantage: "What breeds change is fear and crisis," Robinson says. The trick is to channel that energy and provide strong leadership to encourage all the above.

In Section 2 of this issue we offer you a couple of innovation-related articles. In "Revolutionary Soldiers," by Senior Writer Perry Glasser, we look at radical, or breakthrough, innovation and why it's so important to your organization's future health. In "Romper Ranch," Features Editor Todd Datz attends an inventing session with the executives from snack-food-maker Gardetto's at Doug Hall's Eureka Ranch. If you've ever wondered what it's like to participate in one of these sessions or what you're likely to get out of it, wonder no more. Datz does a marvelous job of taking you there.

And there's more coming. Because business as usual doesn't cut it anymore. Is your company doing something innovative in the way it creates products, serves customers or manages business? We'd love to hear about it.



Abbie Lundberg
Abbie Lundberg
lundberg@cio.com



© CIO Communications, Inc.

President, CEO and Group Publisher Joseph L. Levy
Publisher Gary J. Beach
Editorial Director Lew McCreary

EDITORIAL

Editor in Chief Abbie Lundberg
Executive Editor Richard Pastore; Managing Editor, Production Cheryl R. Asselin; Senior Editors Howard Baldwin, Alice Dragoon, Tom Field, Carol Hildebrand, Art Jahnke, Christopher Koch, David Rosenbaum, Megan Santosus (Web & Print), Anne Stuart; Features Editors Elaine M. Cummings, Todd Datz, Sandy Kendall, Meg Mitchell, Katherine Noyes; Senior Copy Editor Sheila Neylon; Copy Editors Kathleen Carr, Steve King, Thomas G. Wailgum; Senior Writers Gary Abramson, Mindy Blodgett, Perry Glasser, Sari Kalin, David Pearson, Polly Schneider, Derek Slater; Staff Writer Daintry Duffy; Editorial Researcher Carol Zarrow; Editorial Assistants Kelli Botta, Meredith J. Levinson, Lynne Zouranjian; Editorial Operations Manager Lisa Jayne Kerber; Administrative Assistant Stacy Hague; Contributing Editor Sara Shay; Contributing Writers Bob Chatham, Lauren Gibbons Paul, Bill Roberts, Matt Villano

DESIGN

Group Director, Art and Design Mary Lester
Art Director Lisa Munroe; Sr. Graphic Designers Hana Barker, Terri Haas, Steve Traynor; Graphic Designer Terri Mitchell; Associate Graphic Designers Kaajal S. Asher, Robin M. Belliveau, Jessica L. Sepe

WEB SITE

VP / Technology and Webmaster Tim Horgan
Web Editor Stephen L. Singer; Web Writer Martha Heller; Senior Web Developer Dagmar Eiben; Web Developer Ellen Morey; Research Editor Kathleen Kotwica; Vendor Program Manager Andy Burrell; xNet Program Manager Jamie Magee

CIRCULATION

VP / Circulation Carol A. Spach
Circulation Manager Susan Woodworth; Subscription Svcs. Manager Denise Perreault; Circulation Coordinator Tina Pescara

PRODUCTION

VP / Production Lori Beth Sadewitz
Senior Production Manager Resa Altsher; Production Associate Lee Tuttle; Ad Traffic Coordinator Chloe Taylor

EXECUTIVE PROGRAMS

Senior VP / Exec. Programs Lynda Rosenthal
VP / Event Development & Planning Robin L. Azar; Director, Marketing Services Shellie Rapson James; Director, Program Planning Susan T. Montgomery; Fulfillment Manager Brian Fuce; Manager, Ancillary Products Bill Kerber; Manager, Program Operations Cynthia Laird; Managers, Program Development Thomas M. Pitkin, Michele Zarella; Technical Admin. Specialist Liz Hecht; Program Marketing Specialist Jeremy E. Draper; Administrator, Program Planning & Finance Sandra J. Hughey; Administrator, Exec. Programs Heather Beauton; Coordinator, Exec. Programs Michael Barbato; Fulfillment Assistant Christina Cyr-Pereira; Meeting Planning Specialist Amy Sanderson

MARKETING

Senior VP / Marketing Cathy O'Leary Hayes
VP / News and Information Susan Watson; Media Relations Executive Karen Fogerty; Research Director Bridget Cammarata; Market Research Analyst Caroline Cerullo; Marketing Comm. Director Marcy L. Dill; Marketing Comm. Specialist Lisa Wilson-Wirth; Cust. Service Rep. / ConsultWare Dot Caspersen; Marketing Assistants Julie Hanson, Kari Noah

ADMINISTRATION

Senior VP / Operations Walter Manninen
Assistant to the Publisher Diane Martin; Financial Analyst Kerry Grady; Billing Administrator Joyce Gillis; Office Coordinator Dawn Cora

INFORMATION SYSTEMS

VP / CIO David Woodall; Manager, Network Services James C. Burgoyne; Manager, Desktop Services Louise Pelletier; System Administrator Katy Tynan; User Services Specialist Michael Fahlsing; IS Specialist Simon Liang

PHOTO BY WEBB CHAPPELL

Sometimes a solution comes to us when we're not really working on it. That's what we call a nice break.

It's gratifying when things fall into place. As it did for the people at Cathay Pacific Airways. They wanted to deliver an even higher level of service to their passengers. So we installed our Customer Loyalty System to let them track individual customer travel patterns and preferences. Even hobbies and interests. And link them directly into the new Asia Miles frequent-flier program. When our clients care as much about their customers as Cathay Pacific does, we simply take our cue from them. www.unisys.com



UNISYS

We eat, sleep and drink this stuff.

©1999 Unisys Corporation.



In Box

TAKE A BREAK?

I believe that applying the effort [of all businesses shutting down the week of Jan. 3, 2000, "In Box," CIO Section 1, March 15, 1999] would only create mass chaos. Ordinary individuals are not prepared to survive in a mode that impairs their everyday activities. By allowing [daily activity to continue] as we know it, individuals around the globe would deal with this event in a more calm manner.

The technicians and leaders of organizations have the responsibility to maintain continuity. The question is, Did the leaders get where they are by knowing someone, or are they true leaders who understand global business? We need not take off any weekends or holidays prior to this century change. If you work through the remaining holidays this year, you'll get the extra week you are proposing. Prepare now, not later.

Jose A. Brizuela
Senior Business Analyst
Kraft Foods Inc.
Northfield, Ill.
jbrizuela@kraft.com

I HAVE A QUESTION

I read your article ["Mazed and Confused," CIO Section 2, April 1, 1999] with interest, but I noticed you left out the one thing that frustrates people more than any other Web site design flaw: a site that doesn't give customers a way to communicate questions. The



Web was created as an alternative communication network, after all, but most dot com companies use it as a passive billboard. That is pretty worthless, and worse, it's enough to drive me away as a customer.

Joe Adams
Vice President of Market
Communications
Interactive Intelligence Inc.
Indianapolis
joea@inter-intelli.com

PERSONAL PREFERENCES

I just finished reading “You Think Tomaytoes, I Think Tomahtoos” [*CIO* Section 2, April 1, 1999]. You covered this subject very thoroughly and in a nice, consistent manner. I learned some things about how to make information retrieval easier and, of course, how Bay Networks created a solution to its problem.

To me, the central concern is how to index information in multiple ways. No matter how one person catalogs information, someone else will want to see it a different way. This problem is not unique to organizations; individuals have the same problem. For example, it's not uncommon for me to want to have a spreadsheet stored in my "expenses" folder as well as in the folder for an individual client. As a person who is chronically unorganized, my problem is always trying to figure out a way to store things easily without having to do much work.

Thank you for an outstanding article.

Gary Saxer
Enfish Evangelist
 Enfish Technology Inc.
 Pasadena, Calif.
 evangelist@enfish.com

On Our Web Site

cio.com

<http://www.cio.com>

ANALYST CORNER

This area presents the latest industry analysis from the research community.

www.cio.com/analyst

TALKBACK

Read *CIO's* opinions on a variety of issues and trends and express your own in this format.

www.cio.com/xnet/resources.html

YEAR 2000
RESEARCH CENTER

Links, articles and roundtables will help you survive the date change.

www.cio.com/forums/y2k

DISCUSSION AREAS

Our knowledgeable readers discuss a wide range of topics—the next big wave, career strategies, IT support models, knowledge management and more.

discuss.cio.com

REMOTE COMPUTING RESEARCH CENTER

Whether you take it on the road or work from home, you'll find new strategies to make telecommuting easier.

www.cio.com/forums/remote

How to Reach Us

E-mail: letters@cio.com

Phone: 508 872-0080

Fax: 508 879-7784

Address: CIO Communications Inc.,
492 Old Connecticut Path, P.O. Box 9208,
Framingham, MA 01701-9208

Web Site: www.cio.com

Subscriber Services: 800 788-4605;
Fax: 508 879-7899;

E-mail: denisep@cio.com

Reprints: Reprints are available by calling RMS at 717 560-2001, Ext. 31.

Letters may be edited for length or clarity.

com



**Our application server
will help you do things
never thought possible.**

netdynamics

Ouch! Plunging into the new networked economy can be pretty painful. But Sun's NetDynamics™ application server can make it more comfortable for IT managers to integrate systems, data and corporate applications on the Net. Which is what more than 700 companies around the world are discovering right now. They can start with their existing systems and add or delete components at will. And since

the NetDynamics software is immensely scalable, it can easily handle unexpected surges in Web traffic and customer growth. With it, companies are instantly given the power and flexibility to .com themselves overnight. So, if you want to reinvent your business without performing physically painful acts, why not do something that's truly easy: call us at 1-888-THE-JAVA and ask for our Application Server Evaluation Kit. It's free! THE NETWORK IS THE COMPUTER.™
We're the dot in .com.™



©1999 Sun Microsystems, Inc. All rights reserved. Sun, Sun Microsystems, NetDynamics, the Java Coffee Cup Logo, the Sun Logo, The Network Is The Computer, and We're the dot in .com are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries. www.sun.com

Publisher's Note

Each year International Data Corp. asks senior IT executives at large firms an open-ended question: Which company is most important to the success of your organization's Web-based business projects?



With so many users and vendors hitching their competitive wagons to e this and e that, many eagerly await the annual answer to this question—and more important, its trending since the previous year.

As the presenter at IDC's Directions '99 conference was about to report the results, I wondered who the big winner would be this year.

With the open nature of the Internet, it is encouraging to see that the largest category remains None/Don't Know. With e-business being the core component of IBM's business strategy, its 30 percent drop-off surprised me. Do the numbers suggest users are ready to make Oracle

Corp.'s Larry Ellison their new visionary? Why did Netscape Communications Corp., taken for dead by many, double its share? Could it be its move to share software source code? How about Cisco Systems Inc.? From less than 1 to 3 isn't exactly in the 0 to 60 mode, but it certainly bodes well. And I am perplexed by corporate users who continue to give Sun Microsystems Inc., the self-proclaimed "dot com" company, such low marks as a critical Web supplier.

I suspected the year-long trial would take its toll on Microsoft Corp., but a halving of its share was not in my cards. Could the Web be Microsoft's technological Waterloo?

Did your critical Web vendor make the list? How do you explain this year's results? Drop a note to my e-mail address listed below.

Gary J. Beach

Gary J. Beach
gary_beach@cio.com

Which company is most important to your Web projects?

	1999	1998	1997	1996
None/Don't Know	43%	46%	39%	50%
IBM	7%	10%	3%	3%
Netscape	6%	3%	10%	14%
Oracle	5%	1%	2%	0%
Cisco	3%	<1%	<1%	<1%
Sun	<1%	1%	1%	3%

SOURCE: IDC GLOBAL I.T. SURVEY, 1999

CIO SALES OFFICES

President, CEO and Group Publisher

JOSEPH L. LEVY
508 935-4601

Publisher

GARY J. BEACH
508 935-4202

Senior VP / Sales

MICHAEL J. MASTERS
973 244-5500, Ext. 21

EAST COAST

VP / Business Development

FRANK S. GENOVESE
973 244-5500, Ext. 19

Regional Managers / Advertising Sales

EILEEN P. LOBAUGH
973 244-5500, Ext. 18

KATHY POWERS
973 244-5500, Ext. 14

Account Executive
ELLIE SCHWAB
973 244-5500, Ext. 16

Advertising Sales Associates

JOAN BONADEO
973 244-5500, Ext. 17

MARLENE LEVIS
973 244-5500, Ext. 15

ANGELA FUNG
973 244-5500, FAX 973 227-1565

NEW ENGLAND

Regional Manager / Advertising Sales

LEN GANZ
508 935-4039

Advertising Sales Associate

STEPHANIE ROY
508 935-4092, FAX 508 872-0618

SOUTH CENTRAL

Regional Manager / Advertising Sales

ROBERT E. SAWDON

Account Executive

SOUNTHALY OUTHAVONG

Advertising Sales Associate

SANDRA BECKMEIER
512 306-9801, FAX 512 306-9805

NORTH CENTRAL

Regional Manager / Advertising Sales

KEITH H. KENNER

Advertising Sales Associate

ANNE SWARTZ
847 441-5005, FAX 847 441-5150

WEST COAST

Regional Director / Advertising Sales

RICHARD BASTAS
415 693-1988

Regional Managers / Advertising Sales

JAMES BARRETT
415 693-1995

PAULA J. CONNOR
415 693-5634

Account Executive
LUCIA BRAVO
415 693-5583

Senior Sales Associate
SYLVIA WEILER
415 693-5632

Advertising Sales Associate

SARAJANE ROBINSON-RETONDO
415 693-1993, FAX 415 398-4649

SOUTHERN CALIFORNIA

Regional Manager / Advertising Sales

NANCY A. COY

Advertising Sales Associate

JANIS WIKANDER
949 475-5579, FAX 949 475-5583

LIST SERVICES

List Services Manager

KATHRYN A.W. GRAYSON
508 935-4072

List Services Sales Associate

AMY McCABE
508 935-4151

800 859-5478, FAX 508 872-8506

ONLINE SERVICES

VP / Online Sales

LISA BROWN
508 935-4470

Online Sales Associate

MICHAEL MCPHEE
508 935-4611

CUSTOM PUBLISHING

VP / General Manager

ELLEN ROMANOW
508 935-4796

For further sales information,

visit our Web site at

www.cio.com/marketing/salesoffices.html

PHOTO BY WEBB CHAPPELL



**This IT manager is
monitoring capacity in Chicago.**



**This IT manager is
paying bills for Dallas.**



**This IT manager is
rerouting calls from Boston to Phoenix.**

**MCI WORLD.COM**

You can now manage all of your data and voice communications over the Internet. With MCI WorldCom Interact,SM real-time traffic monitoring and routing, electronic billing, and secure online payments, among other options, are literally a mouse click away. MCI WorldCom Interact allows you to manage our unsurpassed voice and data services from wherever you are, whenever your business demands. In fact, no other Internet tool offers more control over your network. To learn why MCI WorldCom Interact was named the best Internet/Intranet product at the ComNet '99 Conference, visit our Web site at www.wcom.com

The names, logos, and tag lines identifying MCI WorldCom's products and services are proprietary marks of MCI WORLD.COM, Inc. or its subsidiaries. MCI WorldCom is traded on NASDAQ under WCOM. For more information on MCI WorldCom, visit our Web sites at mciworldcom.com and wcom.com. © 1999, MCI WORLD.COM, Inc. All Rights Reserved.

INTERACT

**NETWORK
MANAGEMENT**

**TRAFFIC
MONITORING**

**ELECTRONIC
BILLING**



5,280 phone calls taken.
2,050 web queries resolved.
3,400 brochures sent.
1,450 questions answered.

What a great day.

Taking care of customers. That's what Corepoint Customer Relationship Management software is all about. With one end-to-end software solution, Corepoint supports everyone on your team — sales, marketing and customer service/support — anyone who touches your customer. Information is more accessible. People are more productive. So every customer contact can be maximized. Make every day a great day to build the customer loyalty that builds profits.

To register for our next free live telephone/web seminar on "Customer Relationship Management" or for more information on Corepoint, call 877-891-1606 today or visit our website at www.corepoint.com.

Corepoint[™]
An IBM company

Turning customer satisfaction into loyalty.[™]

CUSTOMER RELATIONSHIP MANAGEMENT SOFTWARE

Trendlines

NEWS, INSIGHT, HUMOR, REVIEWS

Edited by David Rosenbaum



Hot Times in Silicon Wadi

FOREIGN DESK You know Silicon Valley, but do you know Silicon Wadi? (Wadi is Arabic for a dry riverbed.) By some estimates, this little-known neighborhood outside Tel Aviv produces 90 percent of the world's security software. And after Y2K, security is probably the number-one concern of business today.

Why has Israel achieved this preeminent position in security software? According to Asher Jospe, there's one crucial factor: Israel is small.

"It takes only seconds for a missile or plane from Syria or Jordan to fly over Israel," says Jospe, president, CEO and cofounder of Security-7 Ltd., a software developer specializing in protecting enterprise networks from mobile code attacks. "There's no distance to speak of. So that requires real-time security to prevent jamming of our systems.

"Whenever a plane takes off from Syria, they're jamming our detection systems," says the 50-year-old Jospe, who served in the Israeli Defense Force (IDF) from 1970 to 1982, retiring with the rank of major. "So we try to jam his communications, air-to-air and air-to-ground. And he develops

an anti-jam. And I develop an anti-anti-jam. And all this must happen in real-time.

"Real-time," says Jospe, "requires a tremendous amount of processing power and data management. You can't say, 'Wait a minute, I'll deal with this later.' If you had all the time in the world to inspect incoming code, any programmer could do it. But inspecting the code in real-time, that is the most difficult task in security."

The Israeli software industry, a \$1.4 billion-a-year business, of which more than \$1 billion is export, is led by such vendors as Aladdin Knowledge Systems Ltd., Aliroo Ltd., CheckPoint Software Technologies Ltd., Finjan Software Ltd. and Security-7. But it is the IDF and Israel's precarious political and geographical position that drives its security software development. It is the fruit of an environment of constant anxiety and unremitting conflict.

For more information on the Israeli software scene, visit the Israeli Association of Software Houses, www.iash.org.il.

—David Rosenbaum

Sharpen Your Pencils!

STAFFING Hiring good IT people is an expensive proposition but not as expensive as hiring bad ones. According to Meta Group Inc., replacing a bad hire can cost a company 65 percent to 120 percent of the employee's salary, not including the salary of a replacement and that person's initial lower productivity. But with only references and resumes to rely on, hiring managers often end up crossing their fingers and hoping that their new hire really has the skills to do the job.

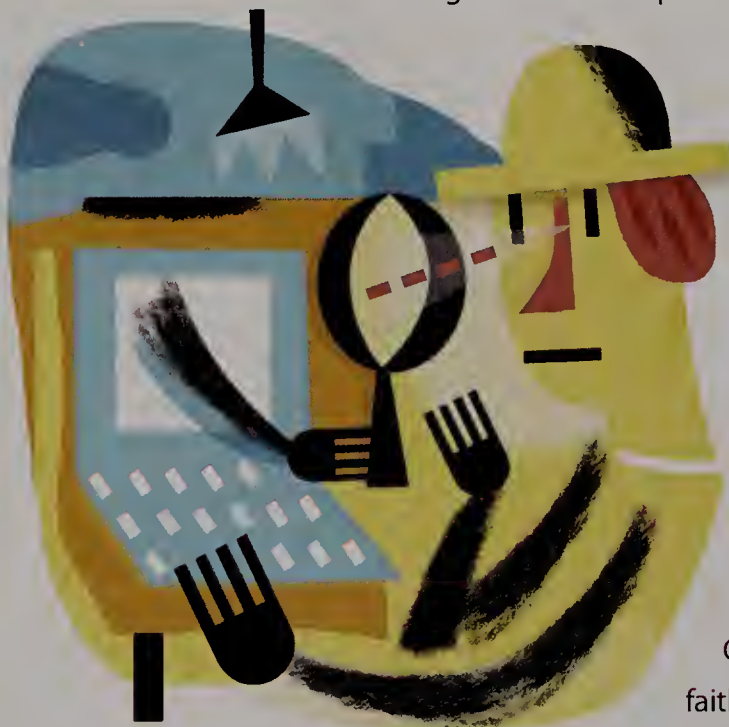
TeckChek of Los Angeles is trying to take the worry out of hiring with a library of more than 100 computer-based exams in a variety of different technologies

including groupware, ERP and the Internet. The test results measure things like work speed and general comprehension as well as percentile scores that compare the individual with other TeckChek test takers on that subject.

Alan Epstein, president of TeckChek's parent company Knowledge Testing Enterprises Inc., says that TeckChek's adaptive design ensures that the test is neither too hard nor too easy. Taken via computer, the test's questions increase in difficulty each time a correct answer is entered and, conversely, become easier when answers are incorrect, thereby ensuring that the test will be able to measure an applicant's skills over a wide range of possibilities.

TeckChek's clients include Metropolitan Life Insurance Co. and GE Capital Consulting, and, according to Epstein, many TeckChek users have exhibited their faith in the test by creating a cut score for hiring.

Continued on Page 22





Remove card
for instructions

Introducing the HP LaserJet 1100A. It prints 8 pages per minute, makes copies, and even scans, so users can share documents via e-mail. All for just \$499*. It's perfect for an overworked special someone in your department. For a chance to win your own HP LaserJet 1100A, call 1-800-LASERJET Ext. 4105 or visit www.hp.com/go/lj1100a.



The HP LaserJet 1100A printer • copier • scanner

Speed (all functions) 8 ppm
Resolution (all functions) 600 dpi
Size (wxdxh) 14.5 x 15.8 x 14.9 in
Input Tray 125 sheets
OS Support Windows® 3.x, 9x, NT 4.0
Networkable via HP JetDirect

Scans directly to e-mail for easy document exchange. Includes integrated desktop software for organizing scanned documents and a professional version of OCR software for editing text.

\$499*

The HP LaserJet 1100 printer

Easily upgradeable to the HP 1100A printer • copier • scanner thanks to HP JetPath technology. Simply add the copier/scanner accessory.

\$399*



CIO MAGAZINE'S ANNUAL SYMPOSIUM & AWARDS

100

Leadership & Innovation for the Future of the Enterprise



HOTEL DEL CORONADO
SAN DIEGO, CALIFORNIA
AUGUST 15-18, 1999

PARTNERS

MC Software, Inc.

Booz-Allen & Hamilton

Handle Corporation

Compaq Computer Corporation

IDS

TeleNet Corporation

Gateway Business

TE Communications Corporation

Macom Corporation

Intel Corporation

Portel Networks, Inc.

PeopleSoft, Inc.

PLATINUM technology, inc.

Predictive Systems

Avoli Systems

Proud underwriter of
the CIO 100 Awards

PLATINUM
TECHNOLOGY

To register or for more
information, call 800 355-0246
or visit our Web site at
www.cio.com/conferences

CIO

CIO Communications, Inc.

CIO 100 Symposium & Awards™ is a
servicemark of CIO Communications, Inc.

Trendlines

Continued from Page 20

Testing job applicants is not the only use for TeckChek. The Progressive Corp. in Cleveland uses TeckChek to measure the efficacy of its own training programs. Progressive's manager of IS training, Pat Grimm, notes that the test also allows the company to check the instructors who are sent by vendors to teach the courses. Grimm has been shocked by the poor scores that some so-called experts have received. "A couple of the instructors really surprised us!" she laughs. But, you know, she wasn't really amused. *—Daintry Duffy*

Off the Shelf

Absorb and Prosper

The Growth Warriors: Creating Sustainable Global Advantage for America's Technology Industries

By Ronald Mascitelli

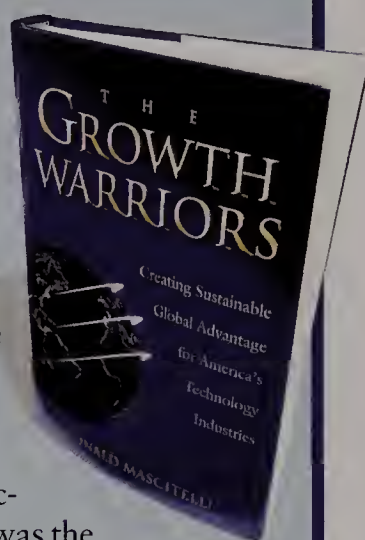
Technology Perspectives, 1999, \$34.95

SPONGES, THOUGH THEY LACK A sophisticated structure, thrive by absorbing sustenance from their environment. In *The Growth Warriors*, Ronald Mascitelli, former senior scientist and R&D director at Hughes Electronics Corp. and the Santa Barbara Research Center, asserts that companies unwilling or unable to absorb ideas from what goes on around them can never thrive. He compares the vertically structured, secretive and hierarchical failure that was the Route 128 enclave in Massachusetts, represented by Digital Equipment Corp. and its ilk, with the horizontal and collaborative success that is the Silicon Valley of Hewlett-Packard Co. and Sun Microsystems Inc. He goes on to highlight the benefits of geographical technology clusters in which venture capitalists rub elbows with programmers who meet hardware designers who eat with university faculty, producing a crosspollination of ideas.

Mascitelli uses the metaphor of pruning a rosebush to illustrate his idea that a "continuous process of creative destruction" is a way to avoid the typical business boom-and-bust cycle. Like a growing number of other people, he warns of the disaster that awaits those who force growth to appease shareholder appetites, and he explodes the myth of technoglobalization (most innovation is still done in the home country of multinational companies) but predicts that foreign countries will solicit and perform more R&D even as Americans learn about the competitive benefits of overseas R&D.

Many chapters offer boxes that encapsulate that chapter's theme. Thoughtful and well-documented, *The Growth Warriors* hits the mark.

—Sheila Neylon



The War Goes On

TECHNOLOGY

WOMEN

fantasize about it as a MEDIUM

see it as a TOOL

want to use it for COMMUNICATION

are impressed with its potential for CREATION

see it as EXPRESSIVE

ask it for FLEXIBILITY

are concerned with its EFFECTIVENESS

like its ability to facilitate SHARING

are concerned with INTEGRATING it into their personal lives

talk about wanting to EXPLORE worlds

are EMPOWERED by it

MEN

fantasize about it as a PRODUCT

see it as a WEAPON

want to use it for CONTROL

are impressed with its POWER

see it as INSTRUMENTAL

ask it for SPEED

are concerned with its EFFICIENCY

like its ability to grant AUTONOMY

are intent upon CONSUMING it

talk about using it to EXPLOIT resources and potential

want TRANSCENDENCE from it

SOURCE: FROM BARBIE TO MORTAL KOMBAT: GENDER AND COMPUTER GAMES, BY JUSTINE CASSELL AND HENRY JENKINS (THE MIT PRESS, 1999)

Know your customer's next move



Competition is growing. Stakes are higher.



The SAS® Solution for Customer Relationship Management provides a winning strategy for identifying your most profitable customers. And keeping them loyal.

Collect information at all customer contact points

Analyze data to better understand customer needs

Refine business strategies around your most desirable customers

To get to know your customers, get to know the only software that integrates the full scope of managing customer relationships. For our **free guide**, *Identifying and Responding to Your Most Valued Customers*, visit us at www.sas.com/nextmove

The Business of Better Decision Making



www.sas.com/nextmove E-mail: cio@sas.com 919.677.8200

We conquer your technology problems....

Smart IT decisions and strategic business moves have taken you this far. Now, let Inacom take you even further. With an Inacom team helping manage your complete distributed computing environment — you can focus your energies on taking your company all the way to the top. We'll even help you migrate to new technologies that can keep you ahead of the game. Simply put, our experience, talent and methodologies are unparalleled. Inacom is changing the services landscape.

So you can conquer the world.

If your current technology infrastructure isn't getting the recognition it deserves, visit www.inacom.com/review to request a FREE 30-minute project review with an Inacom Professional Services consultant. After you complete a brief project background, a consultant will contact you to set up a personal meeting. To participate, you must register in advance at the URL listed here or call 1-800-664-9122 for more information.



Running is everything.™

Trendlines

X-Raying the Enterprise

BUSINESS RULES In March 1989 the CEO of Phillips Petroleum Co. announced a \$200 million profit. Two months later the company's accountant, KPMG, announced that the \$200 million profit announcement was a little off. Actually, it was a \$2 billion loss. The unfortunate CEO resigned shortly thereafter.

The CEO's problem? He didn't understand or trust the reports he was getting from his IT department.

At that time, Ronald Tetteroo, a young programmer working for Shell Oil Co. in Eindhoven, Netherlands, observed that like the Phillips CEO, Shell's business executives neither understood nor trusted the reports generated by their IT department. KPMG agreed and in 1994 asked Tetteroo if he could figure out how to present data in such a way that non-IT people could understand and even use it.

In 1996 Tetteroo produced what he calls an "Info X-Ray" that gives executives a picture of where the information a company possesses is located, and what it is, no matter where it is hidden. The Info X-Ray browses through all a company's information repositories, reading them in whatever environment the information has been stored, presenting it on the executive's desktop in a browser format. There it is, without the muss and fuss of spending



months driving an IT department to dig the data out of some labyrinthine database.

In 1997 Tetteroo started InfoRay, selling the X-Ray software. That year, according to Tetteroo, he had one customer and \$1.5 million in revenues. In 1998 he had \$6 million in revenues, all in the Netherlands. This year, InfoRay relocated its headquarters to Cambridge, Mass. And now it has an American customer.

Tetteroo recalls how Albert Bursma, a division president at publishing house Houghton Mifflin Co., walked into a meeting with Houghton Mifflin Senior Vice President and CTO Mark Mooney and Tetteroo and said, "If the word database is used in this meeting, I'm out of here." It wasn't, and now Houghton Mifflin is Tetteroo's first stateside customer.

—David Rosenbaum

The Total Computing Environment

THINGS TO COME Xerox Corp.'s Palo Alto Research Center (PARC) is famous for innumerable IT inventions, including the first GUI. We recently caught up with Mark Weiser, chief technologist at PARC, to see what's cooking at the lab and how the new technologies he's working on might find their way into the business world. Weiser's catch phrases for the future include "ubiquitous computing" and "smart matter." (For more on PARC, see "Revolutionary Soldiers," Section 2, Page 54.)

Q. What is ubiquitous computing?

A. This means all the kinds of computing that are off the desktop, whether handheld or embedded in the environ-

ment—desks, chairs and walls. In the corporate world it will make people more effective. They can compute while doing other work or talking to people.

One sample use is in capturing the context of meetings. We've prototyped it with our weekly meetings at PARC that look at the inventions of the week. We rank them, relate them to previous work. We do this in a room in which there are cameras on the whiteboards. People bring in laptops with notes, we capture the audio, and everything is tied together in a time-stamped multimedia database. If you want to find out what happened in the meeting, you can click on the marks on the whiteboard and it will play the appropriate audio clip [pertaining to those marks].

In terms of personal productivity,

there are already things like palmtops, which sort of extend your PC into your pocket. Now your calendar is on the network and on the PC and in the pocket, and they stay synchronized. The direction it's going to go in the future is to extend the notion of reminders from time to space. A space reminder is: You walk into your boss's office and the palmtop recognizes that and says, Here are the things you wanted to talk to him about, and here's what's sitting on the printer that you might want to pick up on your way back.

Q. You've mentioned smart matter as a related concept.

A. Smart matter refers to technology for embedding thousands of micro-

Silicon Graphics is now



www.sgi.com

That's short for **S**ervers, supercomputers
and **g**raphics workstations that enable breakthrough **i**nsights.

The new name is shorter, but behind it is a big idea. We're building computing solutions that enable you to expand the realm of innovation and creativity. Solutions that enable you to achieve critical insights into your most difficult challenges — before your competition does.

With our servers and supercomputers, you have phenomenal power to compute the absolute toughest problems. Our graphics workstations allow you to see, manipulate and use data in more meaningful ways. And when combined with our broad range of global services, we make it possible to build exactly the solution you need to explore the ideas you dream of, no matter how big they are. From safer cars, to better drugs, to new oil discoveries, we can help you make anything possible.

Have a new look at SGI. See for yourself how our servers, supercomputers and graphics workstations can solve your most complex problems. You'll discover that, for every challenge you have, the solution is in sight.™

sgi™

The solution is in sight.

Trendlines

processors in the surface of materials. Eventually this might make it possible for the surface of a wall to become smart, so it's both a wall and a display. This is another way of trying to bring down the cost of computing by embedding it.

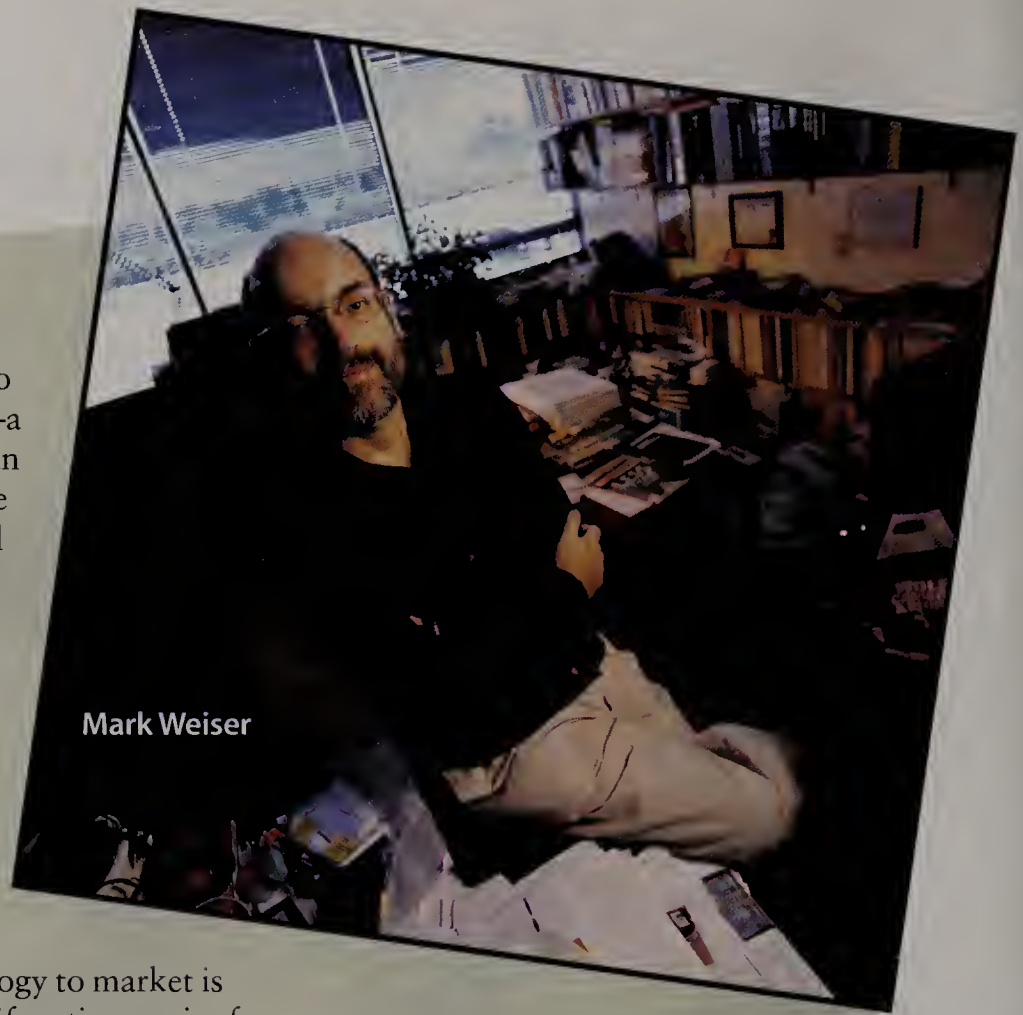
We're looking at ways of displaying lots of information on the screen. For example, the hyperbolic browser. In the middle it shows info about the page you're on and its links, and as the screen goes out it toward the edges it fades to other, more remotely linked things. This provides you with continual awareness of the context of the information you are looking at. It can help people keep centered on their task, not lost.

Q. How and when might these concepts turn into real products?

A. It is harder to design a complete workspace than to design just a PC—a lot more things can go wrong with the space. There's still a lot to work out in how these technologies will apply to the corporate work environment. In the Xerox product line, the way we're just beginning to bring this technology to market is through our multifunction copier-fax-printers. We're embedding more intelligence into the device and linking it to a browser so that, for example, you

can see from your desktop if it's out of paper or toner.

—Derek Slater



Hot Skills and Good Works

I.T. COMMUNITY When officials at New York's School of the Future needed someone to install a Linux server to run the school's Intranet, they called Voluntech.org, an 18-month-old volunteer organization that mobilizes IT professionals to bring technology to nonprofits that can't afford it. Voluntech called Alex Khalil, who was a systems administrator for Merrill Lynch & Co. Inc.'s e-mail system.

So on a frigid night last December, just days before Christmas, Khalil went to the school. It was nearly 6 o'clock. He was beat, but this, he figured, was important.

Kneeling on the floor, Khalil turned on the school's ancient computer. His fingers moved over the keyboard. After two hours, he stood up and clapped. The school was online.

"I spend all day in front of my com-

puter at work, earning money for doing what I love," says Khalil, now a systems administrator for Houston-based Enron Oil & Gas Co. "The least I thought I could do was donate those skills to help people get something they wouldn't have gotten any other way." Today Voluntech coordinates more than 100 regular helpers in and around the New York metropolitan area. Heading Voluntech are four twentysomething IT staffers. Like politicians on the stump, they introduce their organization at corporate IT departments. All it takes, says co-leader James Brooks, a programmer at Home Box Office, is 30 minutes to get people thinking.

One of the people who listened when Brooks and his colleagues talked was his boss, Liz Flanagan, HBO's vice president of application development

for network programming. Flanagan says that in addition to helping others, Voluntech has enabled some of her people to come out from behind their screens and start living.

"A lot of technical people don't have much variety in their lives," she says. "Voluntech gives young people the opportunity to get out there and do something different. Sometimes that's as essential to becoming a better professional as the expertise itself."

Another person who listened was Damien Creavin, vice president of IT at Time Inc. "A lot of my people really jumped at the opportunity to run some of the projects these guys mentioned," says Creavin. "They're getting management skills some of them probably wouldn't get here for a few years. That alone makes it all worthwhile."

—Matt Villano

**FIRST IT WAS 24.
THEN 24x7. NOW
IT'S 24x7x365.
CAN 24x7x365x30
BE FAR BEHIND?**



Not only is continuous computing available, it's well within reach – your ERP-ready IBM S/390® enterprise server. With an unfathomable 30-year projected mean time between failures with Parallel Sysplex®, and virtually no projected planned downtime, the S/390 is the platform for implementing mission-critical enterprise applications from SAP, PeopleSoft, Baan and Oracle. On one system, you can consolidate your ERP applications with your existing apps. And S/390 can easily scale to handle the high volume of transactions and users required for the next evolution of e-business. For more information about S/390 for ERP, type in

www.ibm.com/s390/erp/24x7

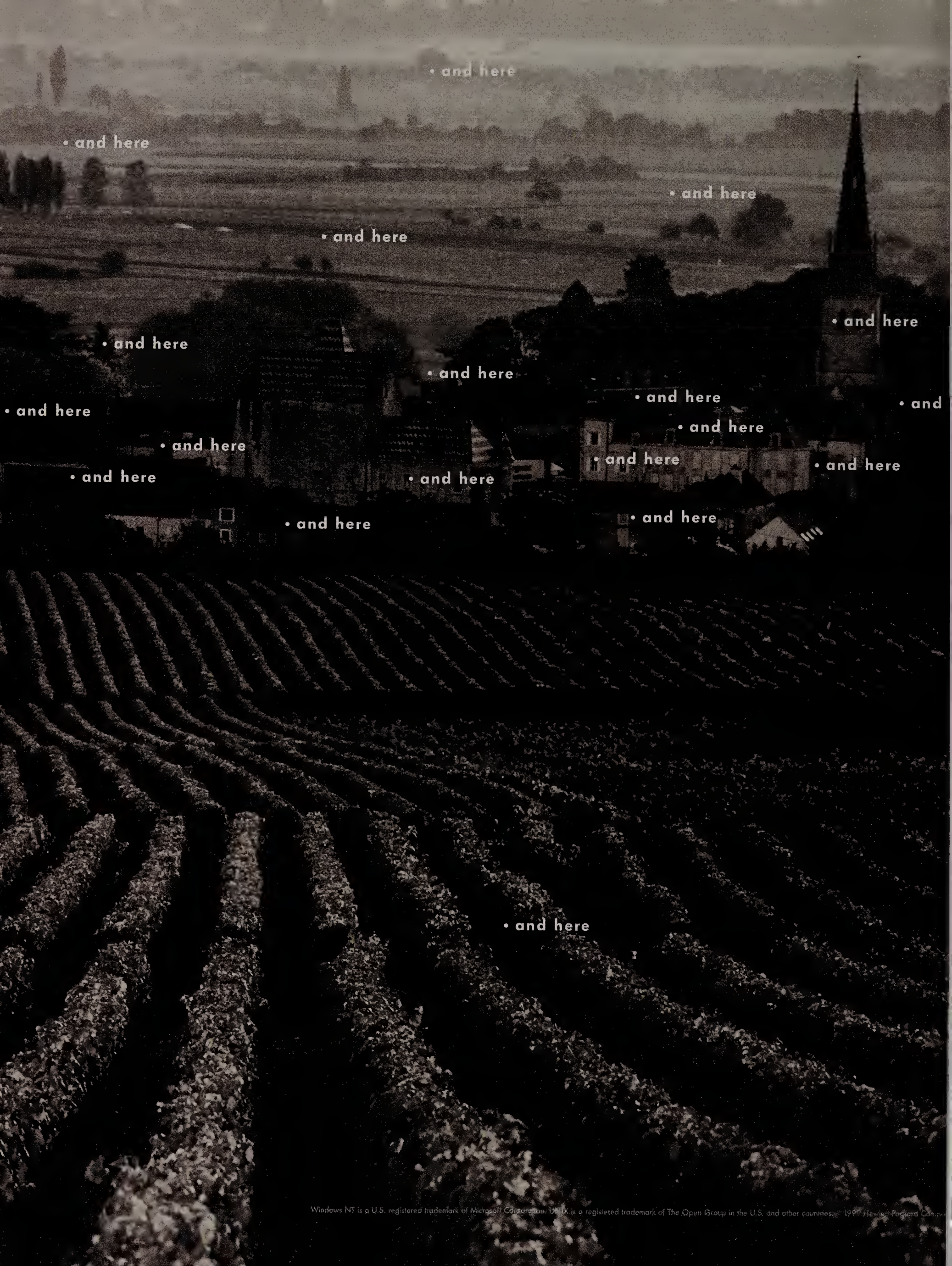
IBM servers. The engines of e-business.



e-business



IBM, S/390, the e-business logo and Parallel Sysplex are registered trademarks of International Business Machines Corporation in the U.S. and/or other countries. Other company, product and service names may be the trademarks or service marks of others. ©1999 IBM Corporation. All rights reserved.



• and here

• and here

• and here

• and here

• and here

• and here

• and here

• and here

• and

• and here

• and here

• and here

• and here

• and here

• and here

• and here

• and here

• and here

We don't care where your data comes from. We can store it. As businesses and consumers become more connected to e-services, volumes of new data will be arriving from unimaginable sources and across multiple platforms. Whether from mainframes, UNIX[®]-based systems or Windows NT[®] servers, your data needs to be securely stored yet readily accessible by you, your customers and your business partners. **Introducing HP SureStore E:** our full line of stress-free storage solutions enables centralized management of your disparate storage assets. From direct-connect SCSI and ESCON to a Fibre Channel grid, HP provides a combination of hardware, software and services that helps prepare your business for the e-service-based economy. For more information about our stress-free SureStore E storage solutions, visit us at www.surestore-e.com.

Stress-free storage for the next E. E-services.



Cold Shoulder in a Hot Market

Everyone says the IT job market is so hot that anyone with the right skills can get a senior-level job. Everyone may be wrong.

BY DAVID ROSENBAUM

ONE MORNING D.W.* AWOKE to find himself unemployed. It had been his choice to leave his job, but that didn't make it any easier.

The regional telephone company where he had been vice president of intranet services for two years had decided to move into the cable television business. For D.W., this was not good news. He had been in charge of an initiative to offer a full suite of intranet services to business customers; he had taken the project through a successful beta test and was ready to go. But he knew there wasn't enough money for two large projects. Not only would he starve, his entire department would in all likelihood take a hit.

"I could have stayed on to be the leader of internal intranet services," he says, "but I didn't think that would be much fun."

Besides, D.W. was aching to flex his muscles. He wanted to be a CIO, or at least a director of IT. "I had credentials," he says. "I'd been there

and done that in all the intranet stuff. I could build a network from scratch."

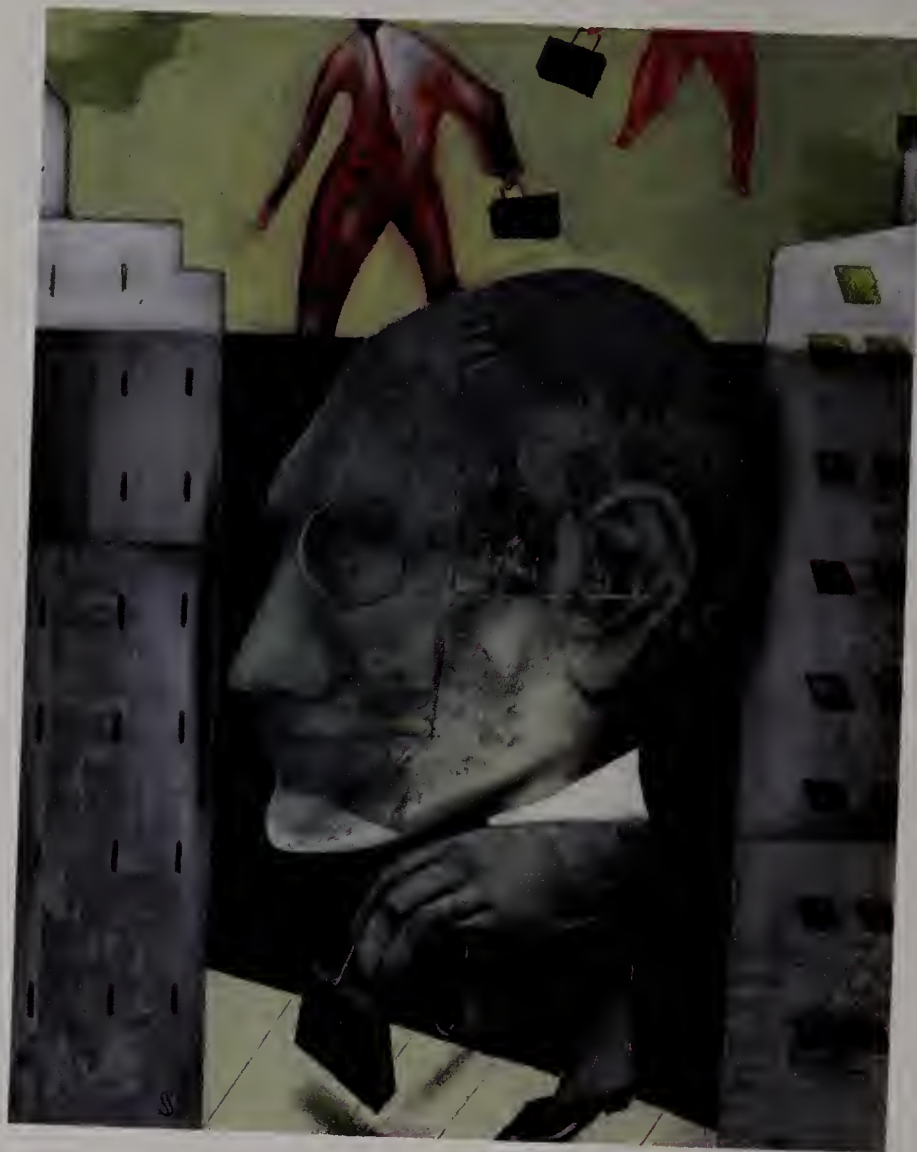
Plus, having come from the business side (he has an MBA in business policy), D.W. felt he was ahead of the curve. "Lots of companies are still talking to consultants about integrating nets into business strategies," he says. "Well, I know all about that. Business folk want technology and first-class service and they want it cost-effectively. That's the art form, understanding what the business drivers are."

D.W. didn't think it was ethical to stay on at the telephone company while he looked for another job. His plan was to consult while he looked for a position with a midsize com-

pany where IT was central, not peripheral, to the business. For a variety of reasons, he wanted to stay in New England.

He knew all about the IT staffing crisis. He knew about the jobs begging to be filled. He knew the mantra about aligning IT with the enterprise, and he thought he had a lot to offer. He figured it wouldn't be too hard to find something.

That was almost a year ago. He's still looking.



D.W.'s View

"This has been one of the most painful periods of my life," D.W. says.

D.W.'s hair is pepper-and-salt, his posture military. In his early 50s, he favors tweeds and oxford-cloth shirts. He's behind his desk by 8 every morning, wearing a rep tie.

**D.W. is a real person. Certain details of his career have been altered to protect his anonymity.*

CORNER IMAGE BY CARL TREMBLAY;
ILLUSTRATION BY SCOTT LAUMANN

Question:
What did the e-tailer
say to the retailer?

Answer:
My floor space is
bigger than yours.

Tower Records

By building a state-of-the-art technical foundation, we're helping Tower Records individualize their customer's online buying experience. Watch for the debut of the new towerrecords.com. We're making a good thing even better.

WOLF-Garten

Our strategy and technological solution enabled us to transform the order-processing procedures of Europe's leading gardening-supply company, reducing the time to process an order from four days to one and giving their 5,400 dealers access to a product line of more than 2,500 goods.

Furniture.com

We helped Furniture.com build the world's largest online furniture store, with over 50,000 items from over 100 manufacturers. Shoppers easily browse this vast selection, create their own showroom, and work with design consultants for personal service.

Ask for our white paper:

Strategies for Growing Your Business
Through E-commerce

40 offices worldwide

46 Fortune 100 clients

Contact us at:

888/879 3241 ext. 162

612/995 8964 [International]

www.uswebcks.com

E-commerce. It offers incredible opportunities. You can fit a million shoppers in your store. With the right site, you can track their buying habits, predict their purchases. You can offer them the world. At USWeb/CKS, we were one of the first to create, build and deploy successful e-commerce sites. Our sites do more than sell products. They combine strategy, targeted marketing, network systems development, Internet technology and more. We've handled over 3,000 client engagements. Let us help expand your virtual floor space. Contact us for details.

USWeb/CKS

Transforming business in
the digital economy.

Executive Counsel

"Looking for work is a job," he says. He reads the papers and periodicals. He checks the Internet: sites that list jobs, vendor sites, professional association sites, listings of IT events. He works the phones, calling people he knows, calling people he's just met—at conferences, forums and luncheons. "The key," he says, "is meeting people who are well networked themselves."

D.W. speaks in a low, soft voice. There are, he thinks, lots of reasons why he hasn't landed a position. Even in the superheated IT field where 300,000 jobs are waiting to be filled, there is still only one CIO per company. And, D.W. believes, the leap from the rung below CIO to CIO is the hardest to make. "I've been a bridesmaid several times," he says. "They tell me I'm great, but they've found someone who's already been a CIO, and they say they have to go with that experience. I understand that. I even believe it's valid."

Despite the widespread belief that companies are looking for CIOs with business as well as technological expertise, D.W. thinks the fact that he's not a "bits and bytes" guy is held against him. "I didn't come up through the IT ranks," he says. "I'm not a programmer who became a supervisor of programmers. I'm a business guy who learned the bits and bytes along the way."

Finally, D.W. admits that his biggest problem may be the fact that he's just

not good at selling himself. "Certain people like to promote themselves," he says. "I don't. I'd rather have my track record talk. I'm not an extrovert."

The Expert View

"Dumb," says Jeff Leon, leader of the IS practice at Russell Reynolds Associates, a New York City-based global executive search firm. "You never leave your job before you find another. It's not easy because it's like having two jobs, but

against him, Deissig says no. "Companies are anxious to find people with scars on their backs," he says.

"The CIO position has changed dramatically," says Anthony Marolta, vice president of Newton, Mass.-based TAC Worldwide, a staffing-solutions company. "The CIO used to be someone managing information internally to drive down costs, especially in manufacturing. Now the CIO is really a revenue generator. He's creating products to attract clients. Your guy has got to prove that he can do that."

"People are looking for a track record of results," says Leon. He says that a good resume should be specific about business accomplishments. He uses the acronym

PAR for problem, action, results—with the emphasis on results. "You need to say, for example, that you rebuilt a system with the result that collections improved 100 percent."

"It doesn't sound like your guy's heart is in it," says Ben Slick, president and CEO of San Jose, Calif.-based People-Scape Inc., another executive search company. "It doesn't sound like he'd inspire confidence. A CIO has to work with a CEO or a CFO. He's got to have the poise to interact."

"Reticence is forgivable at the line-manager level," Slick continues, "but at the senior level you're always selling your ideas, your budget, a hiring plan, the selection of an outsource vendor. That's what CIOs do. And if your guy can't sell himself effectively, nobody's going to be comfortable with him. Unless he finds a low-key CEO who appreciates that style."

"For an introvert, you've got to ask yourself how badly do you want a job that makes you uncomfortable. If you don't want to sell yourself, go to the Rand Institute and think."

Where To Now?

D.W. has no argument with the experts. He's come to understand that his reluctance to sell himself, his natural reticence, has indeed worked against him. He did, in fact, get coaching from an

Even in the superheated IT field where 300,000 jobs are waiting to be filled, there is still only one CIO per company. The leap from the rung below CIO to CIO is the hardest to make.

there's nothing unethical about it."

Leon says that from the middle of last year to now there's been a minor softening in the market for senior-level IT executives, a lot of it due to the fact that the Y2K bug has been absorbing everyone's attention, not to mention their budgets. But once Y2K is out of the way, Leon predicts an explosion in recruiting and job switching.

Still, Leon doesn't think D.W. has managed his career particularly cleverly. Leaving the telephone company after only two years does not, Leon says, speak well of D.W.'s "sticktoitiveness."

"Shocking," says Bob Deissig, president of recruiting services for The Ayers Group, a human resources consulting company in New York City. Deissig doesn't see any slowdown in the senior-level job market although, he says, it may yet come with consolidations in industries like banking and brokerage.

But, he says, "I've never heard of someone with good credentials not being able to find a position after six months. Maybe your guy isn't CIO material. I'd advise him to look for a good level to enter below CIO. And I'd advise him to get some training on how to conduct an interview and maybe get some professional help in rebuilding his confidence: role playing, videotaping, see how you look. It's a skill to sell yourself."

Asked if D.W.'s age might be working

On Our Web Site

cio.com

Your Thoughts?

What career advice would you give D.W.? Please e-mail your comments and suggestions to Senior Editor Tom Field at tfield@cio.com.

We'll post your comments at www.cio.com/forums/executive/articles_excounsel.html and publish excerpts in a future column.

outplacement firm, and he did, in fact, get assistance in framing his resume. He does not, however, regret leaving his job at the telephone company before finding another.

"I still think that would have been cheating the company," he says. "I know people think differently, but me, I couldn't do it and still feel good about myself."

For the past year, D.W. has been surviving on consulting jobs, investments and savings. Right now, he has suspended his job search in order to raise seed money for a plan to start a business in the area of Internet, intranet and extranet applications. "I'm trying to put together a merry band to do this," he says, life entering his voice.

Although his year-long odyssey did not conclude satisfactorily, D.W. does not feel it was a total loss. Painful, yes. But not without its lessons. "One thing I've learned," says D.W., "is the importance of networking while you're in the



"Companies are anxious to find people with scars on their backs."

—Bob Deissig, president of recruiting services, The Ayers Group

job." It's easy to focus solely on the task at hand, he says, keeping your eyes glued to the desk, forgetting that your life is bigger than your job. He wishes that he

had attended more professional conferences and pursued more training opportunities. Balancing his career, his family and social obligations had left him with no time for himself, no time to grow.

"It's one of the most difficult things I'll ever do," he says about his job search. "It's just you. It's lonely. But it's expanded my horizons, taught me about myself. And I've met some wonderful people I wouldn't have otherwise met."

"I like meeting people now," he says. "The people I'm talking to about the business I'm starting, they're all people I've met networking, looking for a job. And you never know. Last week I started talking to this guy I met at a conference and he started telling me about software development in Venezuela. It's fascinating. Who knows if I'll ever make use of it, but it's good to know." **CIO**

Senior Editor David Rosenbaum can be reached via e-mail at drosenbaum@cio.com.

Before you can protect this...

You have to protect this...

Theft. Vandalism. Espionage. Accountability.

You've got a lot to worry about. The first step in safeguarding your vital information is securing who has access to your property, and when. Hirsch offers a full line of security management systems to meet individual needs, from single-door controllers to **MOMENTUM™**, Hirsch's complete Enterprise-Class solution

that can scale up to cover multiple sites around the globe. More and more facilities are choosing to put their door access control systems on the corporate LAN/WAN and controlling hundreds of doors for thousands of users.



Upgrade to Hirsch. Securing people and property since 1981.
949-250-8888 www.hirschelectronics.com

Designed for

Microsoft
BackOffice™

It's not just about

Sprint IONSM

revolutionizing how

you share information.

Sprint IONSM Integrated On-Demand Network. Voice, video, data and Internet on a single connection. It's here. It's real. And it will totally revolutionize the way employees, suppliers and customers share information. Because Sprint ION redefines collaboration. Now everyone will be able to work together in real time, sharing input from every source. And because geographical constraints can be virtually eliminated, it will have great impact on your entire business world—from facilitating the hiring and management of employees to improving



**It's about facing
your stockholders,
with a smile.**

the response time of your supply chain. But it's not just about how Sprint ION will help you face the future as a faster, more responsive company. It's about building stronger bonds between all the people who push your business further. Isn't that the point of contact? www.sprint.com/ion **1-877-SPRINT ION**



The point of contact

ARTER KIT

Ten tools every new CIO needs to succeed

BY MINDY BLODGETT

Harvey Shrednick began his job as CIO at Corning Inc. in Corning, N.Y., in March 1985, but it wasn't until about three months later that he first became nervous about the impression he might be making. Around then, a peer who had started at the same time as Shrednick was fired. Shrednick says his colleague's departure came as a surprise.

"The other corporate officer and I had trained together. He was moving his family [to Corning], and suddenly he was let go," remembers Shrednick, now a professor at Arizona State University in Tempe in charge of a dual master's program in business administration and information management. "I thought we were both just starting off, in the beginning of our honeymoon periods. It really scared me. I said to myself, 'Gee, I might be making some of the same mistakes that he did. Did he know it was coming?' So I went to one of the other top executives and said, 'I hear such-and-such is being asked to leave.' And this guy just said, 'Well, he's not going to make it in our culture.' That's when I saw that problems can surface pretty quickly."

The land mines hiding in the terrain of a new job are many and varied. While veterans say the first year is often a relatively low-key period when everyone wishes the CIO well (depending, of course, on

Reader ROI

YOUR FIRST YEAR ON THE JOB IS critical. We asked both veteran and rookie CIOs for advice on how to meet the challenges ahead. Read this story to learn the top 10 do's and don'ts to ensure your success in a new company.

the company and the reasons for the hiring), the fact remains that the actions taken and not taken lay the groundwork for the years to come. The first year is a time to learn the company's culture, assess and change personnel and build relationships with other top executives—all straightforward yet challenging tasks that, if not done well, can mean a short tenure in a position that once held much promise.

**JUST FOR THE SAKE OF
ARGUMENT, LET'S ASSUME
YOUR COMPANY'S DATA
IS VALUABLE.**



Your data isn't just vital to your company. In a way, it is your company. That's why reliable performance is a top priority in our data backup and storage solutions. In pursuit of that goal, we invented the Ultra 160/m SCSI interface. It's faster than fast, it's highly manageable, it guards your data and application integrity like a hawk, and its cost of ownership is as low as its performance is high. Visit us at www.quantum.com. Next to yourself, no one values your data more highly.

Quantum[™]



When Thomas Gmitter, now CIO of Universal Leaf Tobacco, moved to the South, he learned to modify his Northeastern style of doing business.

"The challenge for me was not having a tool kit, a guide for how to do this role," says Ralph Rodriguez, who is in his second year as director of IT at Treacy & Co. LLC, a business consultancy based in Boston, and is in charge of IS for the recently created Treacy Ventures LLC. "You learn as you go, which can be scary." Rodriguez says his main challenge so far has been getting an understanding of what the company wants from IT so that he can help the decision makers with strategic decisions; he also still struggles with knowledge management issues.

While new corporate officers across the enterprise face challenges, CIOs are up against special hurdles. "The pressure on CIOs today is just tremendous," says David Foote, managing partner at Foote Partners LLC, a consultancy in Stamford, Conn. "In many ways it is the toughest executive job. IT cuts across the entire business and [the CIO has] to be responsive to a wild variety of business and business styles. It's like herding cats, especially if you're CIO for a company with an international presence."

In a general sense, the first year is all about setting priorities, according to Anne Quaadgras, a principal of the United Management Technologies Inc. consultancy in New York City. "You have to figure out the business needs and business drivers early on and optimize existing projects," Quaadgras says. She advises CIOs to take

advantage of the honeymoon period to cancel projects while the aura of goodwill still surrounds them. "If you aren't willing to do that, you won't be a success," she says.

Newly appointed CIOs need not face these challenges unarmed. With the help of veterans and newcomers to the profession as well as consultants and academics, CIO has culled some guiding principles, a starter kit of sorts, that can help make your first year on the job a success.

1 Study the Corporate Culture

It's tricky to figure out a company's culture before starting a job—though you should never accept a position before trying—so learning how your colleagues work is your first task. For example, Shrednick identified several areas where his life differed markedly from that of his executive peers at Corning. He was a city kid from Brooklyn among lifelong suburbanites, unmarried while most of his coworkers had families, and a midcareer hire—he was then 44—when employees normally joined the company right out of school. The culture was homogenous, but Shrednick says he didn't feel he needed to drastically change who he was to succeed. Instead, he says, he went "hat in hand" to other Corning executives to ask how the company worked. He used his executive secretary, a longtime employee of the company, as a barometer of his reputation, asking her to tell him how he was coming off to others. (For more on the importance of a good executive secretary, see "Find Your Right Hand," Page 48.) "I had to make myself acceptable to the company despite my differences," he says. "It's important to understand how those differences will play both to your benefit and your detriment."

Assessing a corporate culture is mostly intuitive, and there are often only subtle clues to follow: the way people communicate, how colleagues dress, whether socializing is important or frowned upon. But never underestimate the importance of fitting in to the broader environment beyond your department. If employees and managers routinely retire to a specific watering hole every Friday night, consider attending a session yourself. Closely watch how others act at manager meetings, study the tone of office memos and examine how managers interact with employees.

2 Understand the Business Model

Thomas Gmitter has spent three years as vice president and CIO of Universal Leaf Tobacco Co. in Richmond, Va. "The culture and the business model act in sync," he says, "so if you fight one, you fight both."

Gmitter cites his experiences as CIO for a German company with a centralized business model. Gmitter was based in the United States, but all decisions, including many important IT-related ones, were made in Germany.

"The culture was that everyone in the company really deferred to senior management," he says. A case in point: When the central office selected software for a new integrated manufacturing system, he says, he didn't have much input in the decision. "It was then up to me to implement it," he says. "Now, I understood this would be the way it was before taking the job—if I hadn't, I

might have been a very frustrated CIO who would have spent the first year fighting the central office."

On the other hand, in some instances a company may be changing its business model and counting on the new CIO to help bring about the transformation. Tom Murphy, who joined Dallas-based Bristol Hotels & Resorts as vice president and CIO in 1997, says when he joined the company it was in a growth mode, with plans to reach 100 hotels by June 1998; the company now owns 120 hotels and plans to grow by at least another 10 percent by the end of 1999. "The culture in IT was that if there

was some problem, get on a plane, fly there and fix it. But that doesn't work when you have so many hotels," Murphy explains. "I had to meet with the staff and say, 'We can't do this anymore.'"

Almost immediately, Murphy began restructuring IT to match the new model, dividing the department into an operations group, a networking development group and an application development group. He also installed a ticketing tool to manage and measure the help desk response. The result was a more smoothly functioning department better able to handle the changes of the business.

3. Build Relationships with Fellow Executives

Murphy says he worked hard in the beginning to cement relationships with the key decision makers in his company. "I made the senior executives give me time in the beginning," he says. Murphy persisted in requesting meetings with these high-level executives

to learn what they wanted from IT as well as to learn more about the business. "I was very aggressive and I responded immediately to their requests so that I could build trust," he says. "At the same time, I communicated to my IT team that I was their protector and that I wasn't just a puppet for senior management. I wouldn't be here now if those dual goals hadn't worked well." When his relationships with other executives solidified, he says, they started calling him on an informal basis and including him in key meetings. Once that happened the profile of IT was raised and Murphy's input was sought in wide-ranging discussions, including talks about acquiring other hotels. "The signal you are looking for is when IT is no longer seen as a back-office, necessary evil but as a function integral to the business success," Murphy says. In addition to attending high-level executive meetings, Murphy stepped up the pace of departmentwide meetings with IT staffers to fill them in on business directions and how IT figured in the company's future.

4. Establish Credibility First Through Small Changes

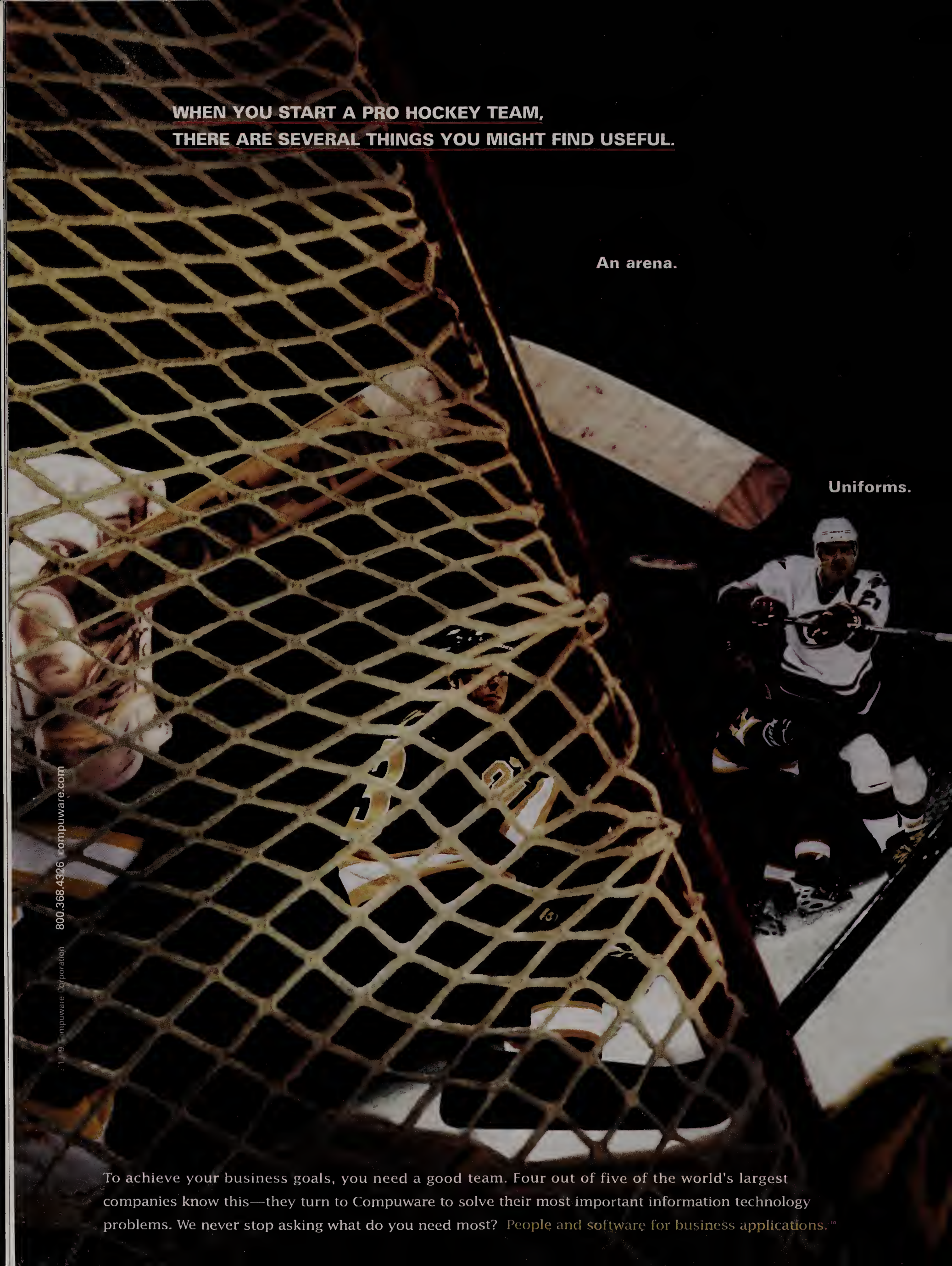
"CIOs are like football coaches who are brought in to take over a team, trying to make changes and address pieces that are missing," says

As a new CIO, Tom Murphy of Bristol Hotels & Resorts evaluated his staff's strengths right away and then made a number of promotions and demotions.



Cultivate a group of confidants who will help you with gnawing questions.





**WHEN YOU START A PRO HOCKEY TEAM,
THERE ARE SEVERAL THINGS YOU MIGHT FIND USEFUL.**

An arena.

Uniforms.

To achieve your business goals, you need a good team. Four out of five of the world's largest companies know this—they turn to Compuware to solve their most important information technology problems. We never stop asking what do you need most? **People and software for business applications.**[™]

Equipment.

Goals.

COMPUWARE®
What do you need most? sm



Carolina Hurricanes, National Hockey League, NHLPA, and the Carolina Hurricanes logo are trademarks of Hurricanes Hockey L.P. and the NHLPA and are used under license by Compuware Corporation.



Scott Dinsdale, CIO of BMG Entertainment, recommends soliciting complaints as a way to build goodwill during the first year.

Gene Raphaelian, San Jose, Calif.-based vice president for executive programs at GartnerGroup Inc. The worst thing new CIOs can do is hide in the job for the first six months. They have to do something substantial, if small—to address the areas of pain. “That can buy you another year of a honeymoon, and it lets people know you get it,” he says.

Laraine Rodgers, president of The LR Group consultancy in Phoenix, has frequently served as an interim CIO for companies or governments in transition, and she agrees that new CIOs also should act quickly “or you become part of the problem.” She says they should pay special attention to the immediate frustrations and needs of their new bosses: “There are some changes you can make immediately to build a cadre of supporters.”

Making an impact doesn’t have to mean, say, announcing the beginning of an ERP project. Scott Dinsdale, now in his fourth year as senior vice president, CIO and CTO at BMG Entertainment, a video, record and entertainment company in New York City, says that in his first six months on the job he addressed relatively minor complaints about IT. For instance, Dinsdale says, people were profoundly bothered by “a flaky LAN” and some desktop issues. By taking care of these relatively simple problems, he could move onto the bigger ones more easily. “You can’t get anything done when everybody is screaming for your head,” Dinsdale says. “Once

I took care of [the smaller issues], I could concentrate on more long-term strategic planning because the noise had died down.”

Dinsdale also delivered a couple of keynote presentations early on at company meetings. When he gave a talk that addressed how a value chain could help the company’s different record labels, he says, “It showed the business guys that I understood their business, that I wasn’t just a technical guy.” He also made a presentation on the company’s need to restructure its way of changing and charging business units for software, a switch that caused some grumbling but also earned him respect.

5. Build a Personal Board of Directors

Cultivate a group of confidants who will help answer gnawing questions or just lend an empathetic ear. Gmitter recalls his move from a company in the Northeast, where the culture was fast-paced and aggressive, to a job in more genteel, slower-paced Tennessee. After a couple of months, Gmitter approached some other high-level executives with whom he had started to form relationships and asked how he was doing. “They quickly told me my style wasn’t working,” he says. “Some of it was little stuff, but it got back to me. [For example,] that people didn’t like that when the phone rang in my office during a meeting I would [take the call]—that was bad in the South.”

Gmitter says his support structure now includes a key confidant in his IS organization and several executive business users in his company. He says no particular positions should be represented on this board. “The important credential is someone who will give you an honest, constructive opinion on how you are doing personally and professionally,” he says.

Treacy & Co.’s Rodriguez says that reaching out to peers and business users within his company has already helped him seek solutions to such brain twisters as how to wrestle with knowledge management. For instance, by working on consulting jobs with the business teams, he has learned the pain of the mobile user. “I’ve gotten a better idea of what a good technical tool kit would be for a consultant by doing some consulting myself,” Rodriguez says. He adds that he’d like to do even more. “I get together with the NT user group in my area and the local software council, and sometimes it’s just a bunch of people in a brewery,” Rodriguez says. “I would like to find more mentors and peers I could turn to to say, ‘Hey, I have \$1 million to spend on this; what happened when you did that?’”

6. Talk and Listen

“The first year should be focused on building empathy,” says BMG’s Dinsdale. “Listen closely, build up goodwill. Then you can start to figure out what needs to be done.” A new CIO should ask the

Introducing A New Approach To Enterprise Management.



©1999 Computer Associates International, Inc., Islandia, NY 11788-7000. All product names referenced herein are trademarks of their respective companies.

Time.

It's your most precious resource.

It's your most squandered resource.

Especially when it comes to enterprise management. For a variety of reasons—none of them good ones—implementation always takes too long and costs too much.

That's why we've developed a totally new approach. Our methodology ensures faster implementation of your enterprise management through strategic leverage of our technology and collaborative work tools.

When you're done, you end up with exactly what you were promised.

It's also affordable. And fast—*guaranteed*.

We call it ExpressDelivery™ and that's not just a name—it's a fact. We deliver solutions to our customers up to two times faster than our competition. The secret is our powerful, automated project methodology, which can significantly accelerate and enhance deployments of all kinds of large-scale information technology projects. It's also extensible to other types of integration services, including ERP rollouts, deployment of electronic commerce solutions, and sophisticated IT implementations.

So stop wasting your most valuable resource. Call us today to learn how ExpressDelivery can help you get to market faster. There's never been a better time.

For a FREE Enterprise Business Value™ (EBV)™ assessment, call 1-877-462-2477 or visit us at www.cai.com/gps.

**COMPUTER[®]
ASSOCIATES**

Global Professional Services™

Accelerated Delivery.™ *Guaranteed.*

end-user support group to report frequent complaints as a way to probe the weak areas. "Tell them they are your eyes and ears and that they need to tell you what is driving people crazy," Dinsdale says. When he first started at BMG, he hired a consulting firm to interview more than 200 top executives, IT staff and employees in the first six months so that he could learn about the business as well as hear their technology wish lists. "We let them vent about the technology they needed or wanted, and a lot of creativity came out of it," Dinsdale says. "It was critical for me to not be in those meetings and interviews. My instructions to the consultants were to poke and prod and not to accept niceties right away. I wanted people to be completely honest. Also, if I [had been] there I might have made

promises I couldn't later keep." These conversations laid the groundwork for a strategic plan he put together later that year.

Another way to open the lines of communication is to establish a steering committee if one does not exist. These committees—small groups that include both business and IS staffers—can help the CIO build relationships between IT and the business side and manage user expectations. Gmitter holds three levels of meetings on the IS side: regular ad hoc meetings with direct reports, expanded staff meetings and departmentwide meetings, which occur every several weeks. The topics vary according to level and what is going on at the company and have included "the state of the business," leadership and personal development. At the department meetings, Gmitter usually invites a high-level business user, such as the CFO, to speak. A general question-and-answer period always follows the department meetings, and everyone is encouraged to raise issues.

Find Your Right Hand

A good executive secretary can make you a star

WHILE SOME CIOs—especially those accustomed to reading their own e-mail and being hands-on managers—pooh-pooh the need for executive secretaries, their worth cannot be overstated. They know where the bodies are buried, and they can help you negotiate the often confusing politics of your company as well as handle the blizzard of e-mail and vendor phone calls you are likely to receive.

For Gary Banks, vice president and CIO at Xerox Corp. in Stamford, Conn., since August 1998, his administrative assistant was his first—and, in hindsight,

Elizabeth Kirch provides valuable reality checks for her boss, Xerox CIO Gary Banks.



most critical—hire.

"I grossly underestimated how key it was to have a good executive secretary who knows the company and knows what is happening elsewhere in the company," Banks says of his administrative assistant, Elizabeth Kirch. "There is so much going on in a company of this size—she helps me figure out what is important and who it is important for me to meet with. There is also incessant travel, and she helps with that."

If you hire an assistant who is already employed in your company, you can take advantage of his or her valuable institutional knowledge while you learn the ins and outs of the job. Kirch, for example, had worked as an administrative assistant in a variety of other departments at Xerox before she came to Banks. But in hiring Kirch, Banks says he relied primarily on how well they "clicked" in the interviewing process, which he conducted himself. This unscientific standard is one many CIOs use, since good rapport is essential if an assistant is to anticipate needs as well as competently handle administrative work. In addition, a good knowledge of technology—famil-

ilarity with the e-mail system, for instance—is also helpful. But since the executive secretary is often the CIO's face to the rest of the enterprise, superior interpersonal skills may be the most important attribute.

Kirch says the relationship between an administrative assistant and the CIO should be like a marriage. "I have to almost be able to read his mind and anticipate problems," she says. Banks, unlike other, less computer-literate executives she has worked for, does a good job of keeping up with his e-mail. "But he still needs me to be his eyes and ears, to make decisions on his behalf when he is not around, to listen around the office and pick up on things he might not have heard," she says.

Banks hadn't been on the job long when Kirch came to him and said she was hearing over the water cooler that there were many complaints about network problems. She told anyone who was grumbling to bring their issues directly to IT, and she urged Banks to be more proactive as well. The result, he says, "is that we were able to head off some messes."

—M. Blodgett

British Airways[®] serves
3 million Executive Club travelers.
On the Internet.

On Oracle.



Companies who know the Internet best use Oracle[®] for e-business. Do you?

For more information, visit www.oracle.com/info/business/13b.

ORACLE[®]
the e-business engine

©1999 Oracle Corporation. All rights reserved. Oracle is a registered trademark of Oracle Corporation.
All other names are trademarks of their respective owners.

7. Be Accessible and Responsive to Users

Don't treat your office as a bunker, hiding there for the first few months as you pore over reports and vendor contracts. Instead, get out and talk to people. Gary Banks, vice president and CIO of Xerox Corp. since August 1998, says letting the company know his door is open has helped his transition. "I've asked people relatively low in the organization what is good and bad about their jobs, and the feedback has been really useful," he says. The information he has received on the issues and attitudes people have toward the IT department has helped him gauge the extent of his challenges. Banks has also conducted formal surveys on what people expect from IT. "We are trying to build up a reputation of responsiveness," he says.

8. Set Realistic Goals

Gmitter at Universal Leaf Tobacco says it takes just one bad experience with a plan that is under-budgeted or severely behind schedule to teach a CIO how to sell projects. He remembers an instance at a previous job when he inherited an ERP project. "I didn't do my homework beforehand, so I didn't know the extent of the mess the project had become when I took the job," he says. "I was overconfident that I could make it work, and I said to them, 'sure, no problem.' But it came down that the software didn't meet our needs and we had to abandon the project. It took me six months to find out that it was unrecoverable." The lesson: Always underpromise and overdeliver, especially the first year.

9. Take Inventory of the Technology

Conduct an inventory of the technology immediately to assess whether internal and external customers are well served by the current systems. It's important to consider how well the technology is serving the needs of the business. "For instance, if your business is technology, then maybe you need to have an IT department that is on the bleeding edge," says Ramu Potarazu, vice president of operations and CIO at Intelsat, an international telecommunications company based in Washington, D.C. "You have to understand where you are on the spectrum."

Potarazu also advises asking an IT staffer who is technically knowledgeable and trustworthy to oversee taking the technology inventory and tracking the service-level agreements. "You need someone who can wade through the technology magazines," Potarazu says, to keep you updated on what is new and different. New CIOs

also need to apply good project management hygiene quickly, he adds. He advises them to ensure that all projects already in motion use the same methodologies and to scrutinize such issues as cost status and technology updates.

10. Assess Your IT Personnel

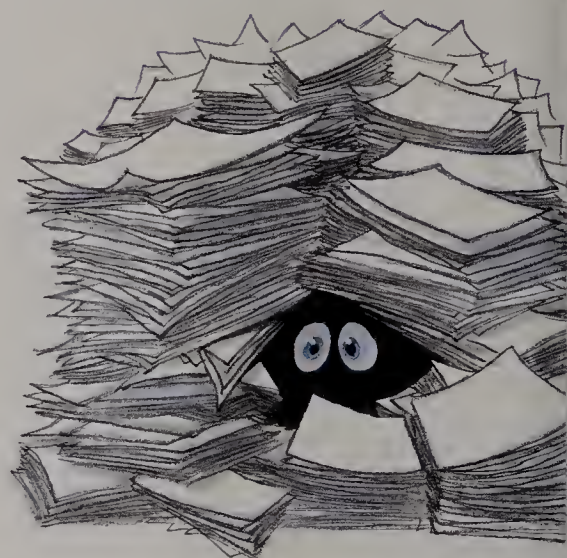
Get to know your IT staff, its strengths and weaknesses. Some CIOs say the smartest step to take is to set up one-on-one meetings with as many IT staffers as possible, quiz them on their career goals and try to get their assessment of the IT department. Meet with the direct reports and IT leaders as well as human resources to determine if immediate actions—such as demotions and promotions—are necessary.

When Murphy joined Bristol Hotels, for example, he waited a few months to fire some people, but he made a number of promotions and demotions right away. He says he waited on the firings because he wanted to give unsatisfactory employees a chance to prove their worth in case the problem with their job performance was linked to the former IT regime. Restructuring IT staff within his first few weeks (see tip 2) put IT in closer step with the hotel's new business model, but it also sent a clear message that Murphy was decisive and willing to act quickly on staffing issues, he says.

Dinsdale believes he erred in his first few months at BMG by not acting more quickly to demote or fire unproductive employees. While he says it is important to give employees second chances, especially if you are new at the helm, "you often know in your gut if someone is able to change. Look at the way that person is acting and reacting in the culture [you're establishing]. I have no problem with standing pat for maybe three months while you send up trial balloons. But I waited too long. There were certainly those who had been stifled by the old regime who were ready to shine, but then there were others who kept promising to be good but never got there. Waiting sent the wrong message—I lost at least one really good person [who was] frustrated with my inaction." **CIO**

Senior Writer Mindy Blodgett can be reached via e-mail at mblodgett@cio.com.

Don't treat your office as a bunker, hiding there for the first few months as you pore over reports.



On Our Web Site

cio.com

For More on Career Management

Visit the Executive Research Center at www.cio.com/forums/executive.

Amazon.com[®]

serves 6.2 million customers.

On the Internet.

On Oracle.



Companies who know the Internet best use Oracle[®] for e-business. Do you?

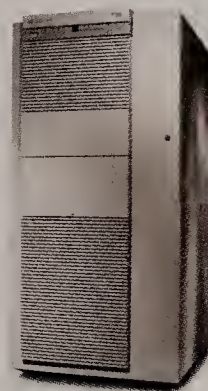
For more information, visit www.oracle.com/infolebusiness/13g.

ORACLE[®]
the e-business engine



Everything was great. Then you got

promoted. As if your IT workload wasn't heavy enough, suddenly you're also expected to handle revenue issues. Locate new business opportunities. And find new revenue streams. If it hasn't happened already, it will. When e-services transform the Internet, opportunities will explode exponentially. Businesses will scramble for a piece of the action. And servers will make all the difference. Fortunately, you've got **the HP 3000 Business Server**. It has the proven reliability to handle the coming onslaught of information, 24 hours a day. It's compatible with the applications you'll need. And it's easily integrated into an e-services environment with UNIX[®] and Windows NT.[®] What more could you ask for? Oh yeah, a vacation. [**www.hp.com/go/3000**](http://www.hp.com/go/3000)



Propelling the next E. **E-services.**



Holding Patterns

Call centers can be poked and prodded to provide maximum efficiency.

But will it cost you your customers?

BY DEREK SLATER

L

ABOR IS THE PRICIEST ASPECT OF A CALL CENTER, SO THE name of the game has long been pure efficiency: Crank through the highest possible volume of calls with the smallest possible number of agents. Though it sounds like a worthy goal, efficiency carried to extremes often has meant rows of cramped cubicles with phone reps riffling through layer after layer of green-screen windows, hunting for key customer information scattered among myriad databases. Morale is low; eyestrain and turnover are high. These difficult conditions reflect the operation's corporate status as a transaction center at best,

Reader ROI

READ THIS STORY TO LEARN

- How to approach the challenge of integrating a call center
- How to use the call center to build customer loyalty
- The trade-offs between efficiency and customer loyalty

At Thomas Cook, Jeremy James (left) and Mike Hughes find that their call center employees thrive in this revamped modern workspace, complete with a 24-hour cybercafe.



CUSTOMER SERVICE

a complaint center at worst. "We're very conscious that many people look on call centers as the sweatshops of the 20th century," says Jeremy James, call center services director for The Thomas Cook Group Ltd.'s Global Service Centre in Peterborough, England.

But a visitor walking into Thomas Cook's new call center facility, which opened last summer, is more likely to think Sweet Shoppe than sweatshop. A 24-hour cybercafe stands in the middle, complete with Internet terminals for employees who crave Java (of either sort) on their breaks or at the end of a shift. The clean, modern setting reflects a change in call centers that runs deeper than decor. The sweatshops are still out there—but not at companies that have an eye on the future. Rather than simply field complaints or chalk up orders, inbound call centers are taking on new goals, new metrics and new systems in an effort to build goodwill and loyalty among their customers. The logic is elementary:

Customer service equals customer loyalty equals money. And the cost of serving and retaining an existing customer pales in comparison to the cost of securing a new one. "We have changed our thinking

dubs its call center staffers) fill 2,500 seats in 11 physical locations, handling new account activations as well as questions or complaints from existing customers, who can connect with the call

"We have changed our thinking from 'cost of agent' to 'value and service to customer.'"

—MIKE HUGHES, CIO, THOMAS COOK

from 'cost of agent' to 'value and service to customer,'" says Mike Hughes, CIO for Thomas Cook's Global Traveller Services unit, which provides travel and financial services for corporate clients.

CIOs still have the basic challenge of putting the right information on the agent desktop as quickly as possible. That's plenty of work in and of itself, since customer service representatives may need to access customer records, product information, billing systems and innumerable other databases to handle a single call. But the goal has evolved. Now the idea is to balance efficiency with more sophisticated call center aims such as customer retention and cross-selling. Achieving that balance is no easy matter, and the CIO must tread carefully or risk tipping the scale.

center simply by picking up their phones and dialing *2. A voice response unit (VRU) takes the incoming call, asks the customer for identification and the purpose of the call, then routes it automatically to the correct facility. An automated call distributor (ACD) transfers the call to the next available agent; at the same time, a computer-telephony integration (CTI) server pulls the customer's individual records from various back-end databases and pops that information up on the agent's desktop as he or she answers the call. (See "Alphabet Soup," Page 61, for help with call center terminology.)

ACD and CTI are reasonably mature technologies that most call centers have in common. The real complexity for most operations lies in what appears on the agent's desk. Efficiency falls through the floor if the customer service representative has to fumble through multiple windows into multiple databases, searching for the right information. At Sprint PCS, a core customer database connects to the company's billing engine to handle questions regarding invoices. In addition, the advocates need up-to-date information about promotional pricing plans that are specific to the caller's geographic location. To streamline the agents' access to all that data, Browne's IS group has developed several overlay applications, which are linked to a back-end transactional data layer. "It looks to the advocates like they're in one application, even though they're really talking to eight or so," says Browne. That speeds call handling, benefiting the customer as well as increasing the representative's efficiency. And if the system has a problem, agents use a trouble-ticket application to alert network administrators; the system is hooked to

Call Center Checklist

The best call centers share these policies and goals

- All contacts logged regardless of type or source
- Customer satisfaction regularly measured
- Contacts handled by first person; few if any transfers
- All information available; few if any calls put on hold
- All necessary information captured during first contact
- Active call-reduction strategy in place (for example, Web self-service)
- Best people put on first-level support

SOURCE: COMPASS AMERICA INC.

The Struggle for Efficiency

CALL CENTER EFFICIENCY IS always imperative, and from the CIO's chair it is first and foremost an integration issue as many different technologies from a mishmash of vendors come together in the call center. When all those pieces are linked smoothly, customer service representatives can handle calls with aplomb.

The situation at Sprint PCS is typical: "We use more than a dozen different applications on the desktop," says Sherry Browne, CIO at the Kansas City, Mo.-based subsidiary of Sprint Corp. Sprint PCS operates an all-digital wireless communications network that competes with cellular networks. About 4,800 "advocates" (as the company

YOU WANT TO HAVE A RELATIONSHIP? WITH ME?
I MEAN, I'M KIND OF HIGH MAINTENANCE.
WHEN I CALL, OR FAX, OR E-MAIL YOU, I
NEED TO KNOW YOU'LL BE THERE.
SO, IF YOU REALLY WANT ME
TO BE YOUR CUSTOMER,

I'M READY.

THE QUESTION IS...ARE YOU?



A FAIR QUESTION. ONE YOU CAN EASILY ANSWER WITH ASPECT.



Aspect gives you the power to define your customers' experience—however and whenever they reach out to you. We provide call center and customer relationship solutions that are open, reliable, and cost-effective. Ones that help companies develop customer loyalty and build long-term profitability. Because it's more than just a matter of technology. It's a human reality...we make happen.

Call 1-800-493-7878, ext. 32, or visit www.aspect.com/tp1 for your FREE booklet *Defining the Customer Experience*.



ASPECT

Defining the Customer Experience™

© 1999 Aspect Telecommunications. Aspect, the Aspect logo, and the phrase "Defining the Customer Experience" are trademarks and/or service marks of Aspect Telecommunications Corporation in the United States and/or other countries. All other product or service names mentioned in this document may be trademarks of the companies with which they are associated.

CUSTOMER SERVICE

a virtual mapping application that shows areas covered by the digital network and helps pinpoint locations in which customers report their calls have been “dropped,” or cut off.

In an ideal world, individual vendors would offer an end-to-end product line for the call center, with built-in links from the CTI server to a consolidated customer data set. Currently they don't, so CIOs have to cobble together the pieces themselves or rely on systems integrators. “There are some common technologies that are best for large, state-of-the-art call centers. Today they are not hooked together the way they should be,” Browne says. Happily, vendors are showing some promising signs of consolidation and cooperation. For one thing, enterprise software providers are getting into the act with customer relationship software. SAP AG, for example, released

a customer relationship management suite in 1998 that includes a module for coordinating call center services. That means companies going the ERP route may find some built-in integration of customer-facing systems with back-end financial systems. Browne also mentions three vendors in the areas of sales and marketing—Siebel Systems Inc., The Vantive Corp. and Clarify Inc.—that are particularly aggressive about trying to connect the dots. “They occupy different product spaces, but they seem to recognize that it's difficult to have disconnected pieces,” she says.

Still, off-the-shelf integration won't be around for quite a while yet—and hooks for some idiosyncratic industry-specific components may never come out of a shrink-wrap, notes David Burkett, president of IT consultancy Compass America Inc. in Reston, Va. That makes

outsourcing a tempting option for many CIOs, who might rather let professional call center providers worry about keeping up their integration skills. But if long-term customer relationships are really the key to the future, outsourcing call center operations may be a big mistake. “The person who takes those calls is your face to the customer,” says Julie Fitzpatrick, a senior vice president at Technology Solutions Co., a Chicago consultancy specializing in customer-relationship management. “If you're going to close the back door and get more out of your most valuable customers, you don't want to give up ownership of that relationship.”

Instead of shying away from the integration chore, CIOs

are adding still more data and applications to the mix in an effort to distinguish their companies through exceptional customer service.

Building Loyalty Individually

THOMAS COOK'S CALL CENTER handles roughly 75,000 calls per day around the clock, coming in from around the world. Yet when a Chinese traveler stranded on a Hong Kong street corner needs to find the closest place to replace his lost traveler's checks, his call to Thomas Cook is answered immediately by a native Cantonese speaker. How is this possible? The company's CTI servers, from Genesys Telecommunications Laboratories Inc., in conjunction with software from Chordiant Software Inc., identify the geographical origin of the incoming call, determine the language most likely to be spoken by the caller and route the call to the most appropriate agent. The Global Service Centre's staff collectively speaks about 30 languages; the company actively recruits worldwide for its call center agents.

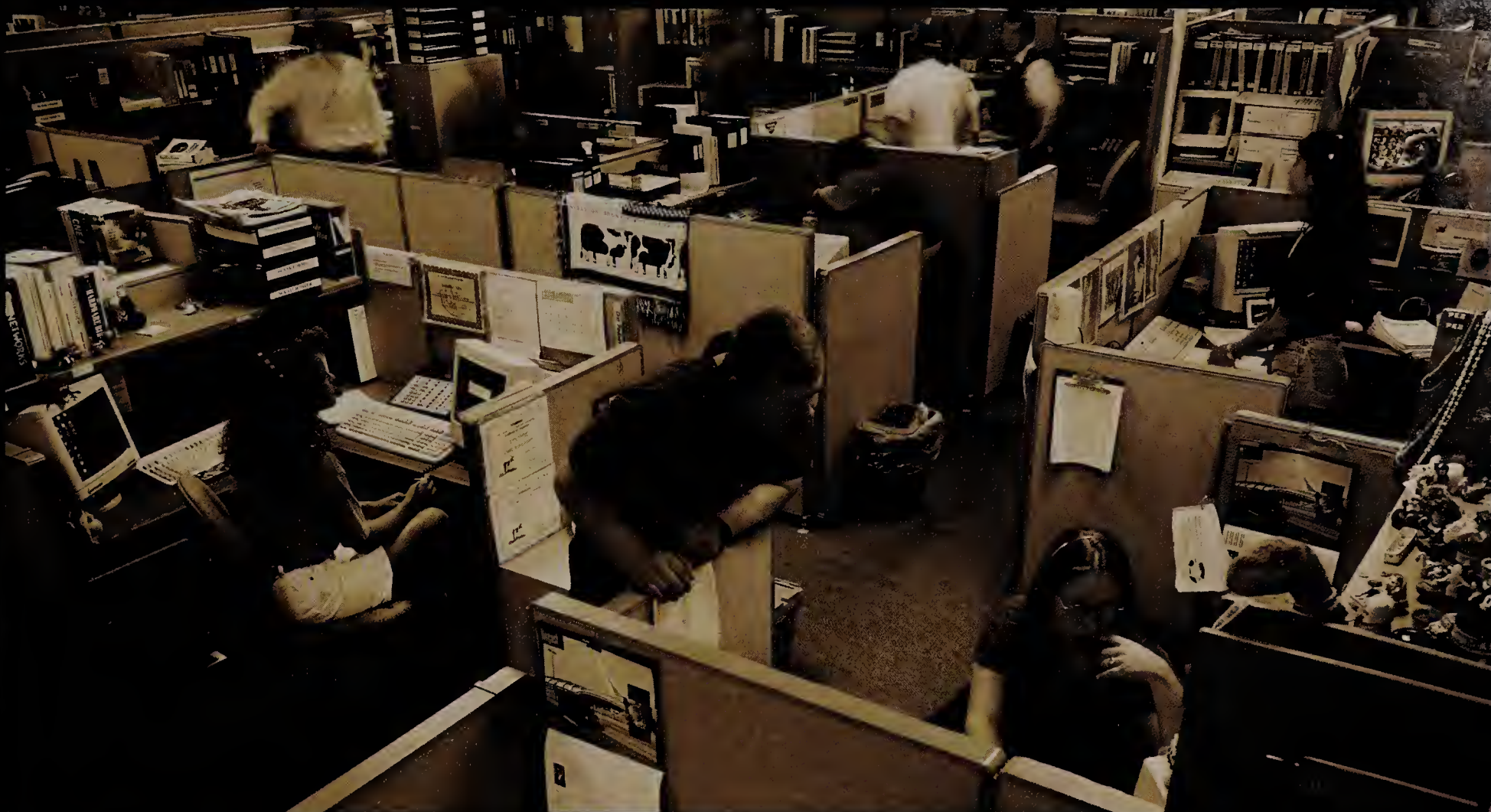
Language is just the first element in the company's efforts to meet the specific needs of each caller. CIO Mike Hughes says the company has also loosened the scripts its agents follow in answering calls in order to allow them to customize their service. “We encourage the agents to apply the cultural values of that particular segment in the way they handle the call,” he says.

Then there is the technology. Thomas Cook's application arsenal starts with an integrated customer-relationship management system from Chordiant. This system is integrated with a geographic information system that can display the exact street of the caller's location and then graphically depict the locations of the closest travel service providers, even if they aren't run by Thomas Cook. These technologies help agents respond to the customer's particular situation as quickly as possible, thereby rescuing the Chinese traveler in Hong Kong.

Companies also personalize their service by collecting increasing amounts of



Sprint PCS has streamlined reps' access to customer data by developing front-end applications, says CIO Sherry Browne.



B u i l t f o r N e t w o r k s

Gateway will tailor computers to your specifications, whether you're adding to an existing network or starting from scratch. Choose from custom-built network-ready desktops, portables and servers.

E-Series Managed Desktops

Look to Gateway for custom-built commercial PC solutions.

Our full line of E-Series managed desktops can lower total cost of ownership with a winning combination of manageability, platform stability, serviceability and system reliability. The Intel® Celeron™ processor-based E-1200 provides solid performance at a minimum cost while the E-3200 delivers maximum Intel Pentium® II processor performance. Both provide exceptional serviceability and expansion options.

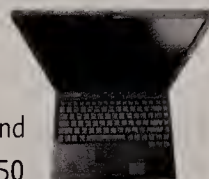
- E-1200 Intel Celeron Processor 366MHz, including 15" monitor (13.9" viewable) **Starting at \$999**
- E-3200 Intel Pentium II Processor 350MHz, including 17" monitor (15.9" viewable) **Starting at \$1399**



Solo® 5150 Portable PCs

At just 6.7 pounds fully loaded and only 1.6-inches thin, the sleek 5150 is a mobile presenter's dream machine and the ultimate traveling companion. Designed around a large, bright 14.1-inch XGA active matrix display and an Intel Pentium II processor, the 5150 also features a swappable media bay that increases flexibility with six modular components.

- Solo 5150 14.1" XGA Display, Intel Pentium II Processor 300MHz (Performance Enhanced), Advanced Modularity
Starting at \$2099



ALR® 7200 Workgroup Servers

Built for dependable performance with server technology that's easy to setup and manage, our NSTL Year 2000 compliant ALR 7200 is designed to grow with your business. Count on truly stable, affordable performance backed by 30-day NOS support and three-year parts, labor and on-site support*.

- ALR 7200 Intel Pentium II Processor-Based Server (Dual-Processor Ready)
Starting at \$1840



Every Gateway client is unique, and so is every Gateway™ business system. Call and tell us what we can build for you.

1-888-888-0260

www.gateway.com/corp

ad code: 50161



Connect with us.

All Gateway Intel processor-based systems are qualified to carry the "NSTL Hardware Tested Year 2000 Compliant" logo because they have successfully completed the NSTL YMARK2000 test. These systems have also passed the Microsoft Millennium year 2000 test suite. Gateway cannot be responsible for any bundled software that improperly sets, resets, or calculates dates. These issues are not related to the hardware and operating system, and cannot be corrected by Gateway.

©1999 Gateway 2000, Inc. All rights reserved. Gateway, ALR, Solo and the Gateway stylized logo are trademarks or registered trademarks of Gateway 2000, Inc. The Intel Inside Logo, Intel and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. All other brand names are trademarks or registered trademarks of their respective companies. Some products and services are not available for all locations. Many products are engineered to Gateway specifications, which vary from retail versions. Prices and configurations subject to change without notice or obligation. Prices exclude shipping and handling and taxes. ALR Series servers meet FCC Class A emission standards. FCC Class A products may not be sold for home use.

*Call 1-800-GATEWAY or write to Gateway Terms and Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations.

CUSTOMER SERVICE

information about their customers, the underlying idea being that it's most convenient for a customer to do business with the company that knows him or her best. Sprint PCS has an ongoing IT

proactively respond to your call by providing you with information about new equipment or services based on your usage patterns," says Browne. If the caller is a frequent business traveler, for

ing the database is where we're taking the productivity hit," Collins says; call center representatives cannot log as many reservations per hour as they used to because they are working to extract more information than usual for each customer profile. He says that's a necessary sacrifice. "If you don't spend the money [in lost efficiency] upfront, you aren't going to get the full payback on your systems down the road," he says.

National has a few efficiency tricks up its sleeve to balance the time lost to the increased data collection. For example, an incoming caller first hears the standard five-second National greeting from the rep to whom the call is routed by the company's ACD from Rockwell International Corp.'s Electronic Commerce division. Actually, though, the greeting is a recording made earlier by that same rep. The caller doesn't know he is listening to a recording since the voice remains the same once the caller starts to interact with the agent. The agent, however, is relieved of some of his job's

"Technology won't accomplish what we want unless it makes the customer still feel like he's dealing with a person."

—LAUREN CHRISTIANSEN, FLOWERSANDGIFTS.COM

initiative involving an application appropriately dubbed Loyalty, which assembles key pieces of warehoused data, such as how much callers spend per month, what services they use and how often. The resulting customer profitability analyses are instantly available to call center staff. "If we know that you're a high-end user with a couple hundred dollars in calls each month, we may

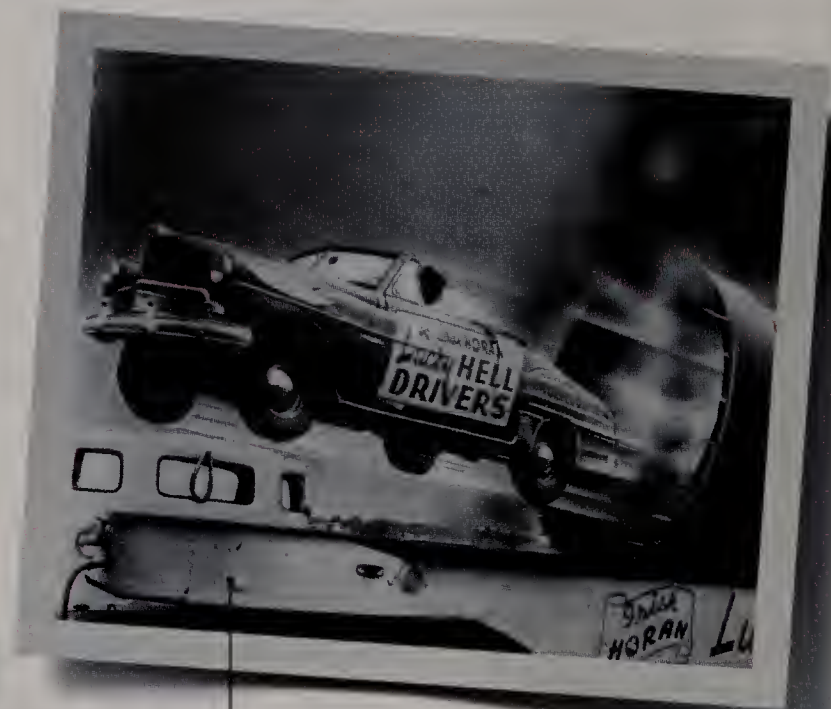
example, the system can prompt the agent to let her know about new coverage areas in the PCS network.

Does this type of individualized attention come at a cost to the call center's hard-won efficiency? "Absolutely," says Bill Collins, Charleston, S.C.-based manager of planning and analysis for reservations and consumer affairs at National Car Rental System Inc. "For us, build-

great moments in **disaster prevention**



1912 The first successful parachute jump.



1964 Seat belts become standard equipment.

repetitiveness (reps can handle as many as 130 similar calls a day) and can interact with the caller with greater concentration. Collins says productivity is up measurably since the company started using this procedure and will increase further when the system is enhanced to allow the rep to review the caller's records in that five-second interval.

One way National Car Rental hopes to use its data in the future is through selective outbound calling. For instance, some customers may rent only one time each year. National's call volume peaks each March due to spring break demand, for example. Next year, the company aims to identify its historical spring break renters and call them in February, when call volumes are lower, to sign them up again. The proactive strategy is designed to both boost repeat rentals and smooth out the peaks and valleys in call center volume.

Just as the data collection process can slow call center representatives, so can using that same data during a call. Data

Alphabet Soup

CIOs entering the call center had better be prepared for a new language

ACD: Automated call distributor. A switch that routes incoming calls (usually arriving via a single toll-free number) to the next available service rep.

CRM: Customer-relationship management. An emerging class of software that purports to track customer information in all stages from initial contact through sales, postsale service and future retention efforts.

CSR: Customer service representative

CTI: Computer-telephony integration. For example, connecting the ACD to a back-end database, resulting in "screen pop" (see definition).

Inbound/outbound: Companies commonly differentiate between call centers for incoming calls and "outbound" centers, where, for example, agents call people at dinner time to sell them long-distance services.

IVR: Interactive voice response system. ("To accept the charges, say 'yes' now.")

Screen pop: The caller's customer information pops up on the agent's desktop system at the same time the phone rings.

VRU: Voice response unit. (For information on other speech recognition technologies, see "A Change of Interface," Page 78.)

presenting SmartFind Plus,TM the smartest way to prevent a Y2K disaster

> What seat belts did for automobile safety, Micro Focus SmartFind PlusTM from MERANT is doing to curb Y2K problems before the year 2000.

Here's a chance to fill the void that industry analysts say is missing from many remediation projects: verification. Micro Focus SmartFind Plus automates and documents not only the find and fix phases, but also the verify phase of your Y2K project. By verifying Y2K code, your organization can better ensure errors are flagged and fixed early, and Y2K compliant applications are placed into production.

Often haphazard remediation efforts cause as much trouble as they find. Micro Focus

SmartFind Plus identifies missed Y2K problems as well as new problems that are often introduced during any remediation effort.

Need proof of due diligence? Micro Focus SmartFind Plus generates reports that provide a detailed record and audit trail of your compliance effort. So check out SmartFind Plus today. It could be a real disaster if you don't.

Get the "Importance of Independently Verifying and Testing Year 2000 Remediation Projects" White Paper or 100,000 lines of code verified FREE!!

 MERANTTM

Micro Focus[®]

Call 1-800-632-6265 ext. 125 or visit
www.microfocus.com/smartfind

999 MERANT offers FREE Y2K verification.¹

CUSTOMER SERVICE

warehouses are not typically designed for the on-the-fly analysis that the call center environment demands. Call centers require information to be delivered to the desktop in seconds, packaged and synthesized so that the agent knows immediately how to use it, says Technology Solutions' Fitzpatrick. "But there needs to be an independent data entity—a 'relationship engine'—that recognizes what the customers have and matches that with the company's internal resources" to provide fast, efficient call center service, Fitzpatrick says. Meanwhile, CIOs must take into consideration the performance they can squeeze out of their particular data engines—a data warehouse chock-full of useful customer information begins to chip away at efficiency if that information isn't easily retrievable—and balance the amount of data presented against the necessary efficient call handling.

Another way of building customer loyalty is to give the customers multiple channels for accessing information. In fact, the term *call center* is out of vogue in some circles, replaced by *contact center*. This term reflects the convergence of multiple forms of customer communication—phone, fax, e-mail, kiosks and increasingly the Web. The call center serves as the nexus for such requests.

For now, the primary role of the Web for most companies is to reduce call center volume while at the same time letting customers help themselves. That will change. Web sites aren't always as complete or self-explanatory as the surfer—or the business—might like. "Success in e-commerce is going to be extremely integrated with customer service functionality," says Don Rosacker, CEO of Flowersandgifts.com, a Web-based company in Minneapolis. A significant portion of the populace is still reluctant to complete a transaction over the Web without first talking to a live agent, according to Lauren Christiansen, the company's director of consumer client services. "We're going to use technology, but it won't accomplish what we want unless it makes the customer still feel like he's dealing with a person," she says. So the Web as a service channel is merging more closely with the call center: Visitors can click a button on a Web site and get a direct connection to a live service rep, either for an IP-based phone conversa-



Flowersandgifts.com's customers can connect with a service rep through the company's Web site, which CEO Don Rosacker and Client Services Director Lauren Christiansen believe is a bare necessity.

tion or a Web chat session. Flowersandgifts.com, which has built a call center group to handle live interactions, uses an all-in-one server that integrates its automated call distributor functions with Web callback and Web chat. The company uses software from Interactive Intelligence Inc. to help filter incoming e-mail, another Net-based customer service channel, so that it can be answered quickly and appropriately. These new technologies present some hurdles; most notably, the unpredictable bandwidth of the Internet makes the quality of voice conversations via the Internet shaky. Those concerns (plus the current paucity of microphone-equipped Web surfers who demand voice over Internet) have prevented many companies from joining the early-adopter wave. But the convergence of multiple channels into the call center is a clear trend and one that promises gains in both efficiency and customer loyalty.

The proliferation of applications and communication channels and the need

to cement customer loyalty promise to keep the CIO and call center personnel talking for a long time to come. For Thomas Cook's Mike Hughes, that communication isn't too hard to maintain, as he is the chief operating officer for Global Traveller Services as well as its CIO. Sprint PCS's CIO Sherry Browne works in lockstep with Faerie Kizzire, the senior vice president who heads up customer care and the physical and staffing concerns in the call center. "To say she and I work closely together would be an understatement. We do our operating plans together," says Browne. The customer care department's budget is expected to reflect savings for any applications delivered by Browne's IS group. This type of communication ensures that CIOs can do their part to deliver the right balance of fast, efficient call center performance and maximum value from each customer. **CIO**

Senior Writer Derek Slater can be reached at dslater@cio.com.



Does your call center handle e-commerce well,
or are you waiting for a sign from above?



Yikes! E-commerce, email, web and IP telephony have suddenly joined voice and fax as ways consumers do business. Are you gaining new customers? Or losing current ones because your call center can't handle the new traffic?

Introducing Quintus eContact, the first complete solution designed specifically to manage and route all modes of customer contacts in your call centers, including e-commerce. eContact integrates e-commerce and email into your existing network

and combines proven CTI with superior reporting, customization and workflow tools. eContact effortlessly handles every customer transaction from first contact to completion. Agents and staff get the tools they need. Customers, including e-contacts, get the service they demand. Quickly.



QUINTUS

Turning contacts into loyal customers.

Will e-commerce grow? Yes. Will you be ready?
Yes, with eContact. Call **1.800.337.8941** or visit
www.quintus.com. Don't get blindsided.

the new thinkpad 570.(dramatization)



¹Estimated reseller price for model 570/2AU. Price excludes UltraBase and other options. FDD/battery included. Actual prices may vary. ²Actual weight/thinness may vary due to vendor components, manufacturing process and options. Weight includes battery, excludes FDD and other options. ³Adapter required. mhz denotes microprocessor internal clock speed only; other factors may also affect application performance. gb = 1 billion bytes for HDD capacity. PCs referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.



ThinkPad® 570



Here's how it works. Just slip the new, ultralight, superthin 570 into an UltraBase and it transforms into a flexible multimedia desktop. A desktop that's still mobile enough to take with you as your all-in-one portable. It's the one computer to have if you need to have more than one computer.



IBM®

price	mobility	specs	ultrabase	 e-business tools
from \$2,699 ¹	1" thin ² 4.0 lbs ²	mobile Pentium® II processor 300PE/333/366 mhz 64mb to 192mb sdram / 4.0gb or 6.4gb hard drive 12.1" or 13.3" active matrix display	holds floppy drive or extra battery and options like CD, DVD, SuperDisk LS-120, Zip or extra hard drive ³	www.ibm.com/thinkpad 800 426 7255, ext. 4164

PROJECT MANAGEMENT

PREPARE FOR

TAKEOFF

Think you know how to run a pilot project? Before you crash and burn, think again. Better yet, follow our checklist.

BY CHRISTOPHER KOCH



PeopleSoft Director of Information Systems Jim Alexander, with Process Manager Wendy Sposato, made sure his team stayed upbeat by awarding getaways to managers who got the most feedback from users.

Carol Schillat's pilot project was a flop.

That's what made it a success.

Schillat's Internet-based ordering and forecasting system for Heineken USA Inc. was supposed to cut into the eight weeks it took to get beer to the company's distributors. After testing the new system with Heineken USA's Florida distributors for six months, the time it took to get the beer to the distributors was...essentially the same.

So why was Schillat pleased?

Because the pilot project, called Hops (Heineken online purchasing system), had a much larger impact on Heineken USA and its parent, the Amsterdam-based beer giant, than she ever could have imagined. When Heineken USA's ordering, forecasting and logistics processes were laid bare, it became clear that the reason for the lag in delivery time was not to be found within Heineken USA but within Heineken Netherlands, which produces and bottles the beer, and Heineken Export, which delivers it to all the company's divisions outside Holland. No matter how streamlined the American process became, it still took the same amount of time to get the brew out of Holland.



Carol Schillat, Heineken USA's director of IT, managed a pilot program that uncovered a strategic solution to a tactical problem.

Reader ROI

READ THIS STORY TO LEARN

- How a small pilot project can have an enormous impact on the enterprise
- The keys to safe piloting

PROJECT MANAGEMENT

"We're now working on a supply chain project with Heineken Netherlands, Heineken Export and Heineken USA to create an integrated system," says Schillat, director of information technology for the White Plains, N.Y., company. "I don't think we would have been able to do that if we didn't have the experience we gained with Hops." Today Hops has become a trusted portal for Heineken's 450 U.S. distributors.

More important, though, was the strategic lesson that came from a relatively small, cheap experiment within a subsidiary. And lessons like these can be had by any company that begins to view pilot projects as a window on the future rather than as a tightly controlled test run of new software.

Think big. Once upon a time, launching a pilot project meant that a few hand-picked employees would peck at keyboards in a conference room for a couple of days using bogus customer profiles. If the software worked in the conference room, it was considered a successful pilot.

Today people like Schillat have learned that the humble pilot can be something much more ambitious—and risky. But it is the sort of risk that companies must take to stay competitive. Enterprise resource planning (ERP) software provides the best evidence of the dangers of narrow piloting. In the early '90s companies jumped at ERP's promise of automating core business processes before gauging the impact these huge, complex software packages would have on people's jobs and the existing computing infrastructure. Stories abound of companies that could not make the software work and aborted two- and three-year efforts costing tens of millions of dollars.

These hard lessons have made pilot projects indispensable disastometers for any large-scale software or business process change.

What follows are 10 insights from those who have captained risky pilots and lived to tell about it.

UNDERSTAND the old before ringing in the new. Jumping into the new work without fully understanding the old processes is taboo. The new processes just might be addressing problems that never really existed.

At American Express Financial Advisors Inc.'s Client Services Organization in Minneapolis, a pilot team was assembled in the brokerage group in 1998 to create a workflow process to enter, track and manage new account applications. The old process was messy, unproductive and time consuming. Paper applications came into the group's mailroom and were distributed by hand, often sitting for days unnoticed in people's inboxes. When account representatives called in to check the status of a new application, no one had an answer.

The pilot team immediately jumped to an electronic solution. It assumed that the whole process would become smoother if the applications were scanned into an electronic

document management system as soon as they arrived in the mailroom and were distributed electronically. Fortunately, the technical team, led by Deborah Cashin, president of Long Lake, Minn.-based consultancy Digital Agility Inc., conducted interviews with everyone involved in the application process and observed them in action to learn how they worked.

Cashin discovered that no one needed to see *what* was in the applications at this early stage; they simply wanted to know *where* the applications were. And new applications make for fat digital files, which would have tied up the network. But by logging information about the application into the system rather than the application itself, the reps could find out whether a



Trying to speed up the account applications process for Amex's brokers, Digital Agility President Deborah Cashin discovered that a quick electronic fix would be worse than no fix at all.

new application had arrived and when it would be acted on.

Scanning was pushed to a later point in the process, when the group actually had to act on the information. In this way, good piloting—learning about the business process before jumping in—enabled Cashin and her group to avoid a catastrophe.

SIGN a project agreement and let everyone know about it. Cashin's team prepared a project agreement, which clearly stated the pilot's scope and goals. "Everyone has a concept of how the workflow should look and how it will change their lives," says Cashin. But if the pilot's more limited goals aren't documented, people may feel let down when their expectations are not met. Cashin says there are still people waiting for their workflow to be automated even though the agreement said that they were out of the project's scope.

Looking back at the original agreement, Cashin sees how it was flawed. "The project agreement went out only to certain management people, and the people in the line didn't really understand what was in there," she recalls. "The communication of the agreement needs a very broad audience through staff meetings and team leader meetings. We were going to prepare a presentation and go within each of the groups that would be affected by the pilot and tell them this is what you can expect to get and this is what you won't get. We didn't take the time to do that, and I regret it."

APPLICATION FORM



CIO MAGAZINE'S

ENTERPRISE VALUE AWARDSSM 2000

The Award for
Innovative IT Solutions

Presented By
CIO Communications Inc.



Proudly Underwritten By



AT&T Solutions

APPLICATION DEADLINE JUNE 15, 1999



CIO MAGAZINE'S

ENTERPRISE

Honoring Business Achievement Through

VALUE

The Innovative Use Of Information Technology

AWARDSSM

CRITERIA

The Enterprise Value Awards honor technology-enabled business achievement. Winners will be chosen by a panel of independent judges from among entrants who have submitted completed application forms to *CIO* by June 15, 1999.

Entries will be judged on the value of the business achievement resulting from their technology investment. Judges will consider such aspects as the strategic impact of the technology-enabled solution; the degree to which the system has benefited customers or employees; the financial return from the initiative; and the operational or technical excellence demonstrated. They are looking for initiatives that have had a broad and significant impact on the enterprise as a whole.

DEFINING VALUE

We invite applicants to consider the broadest possible spectrum of enterprise value. The following list of IT-enabled benefits is not inclusive but rather is intended to help guide applicants' thinking:

Strategic Impact

- ▶ Penetration of new markets
- ▶ Transformation of the terms of competition within the market
- ▶ Increased market share

Customer Impact

- ▶ Customers have more choices of products and services
- ▶ Customers receive better products and services at lower cost
- ▶ Transaction process is more rewarding/less time-consuming

Financial Impact

- ▶ Lower costs due to streamlined operations
- ▶ Increased profits
- ▶ Increased operational effectiveness

Operational Impact

- ▶ Changes to the industry value chain that are leveraged by your business
- ▶ System enabled redesign of core business processes
- ▶ Cross-functional systems integration led to increased margins

SELECTION PROCESS

Finalists are selected by a screening panel of *CIO* editors and independent consultants (the *CIO* Magazine Enterprise Value Awards process team). Each finalist will be subject to an in-depth analysis of the nominated system, to be performed by *CIO* or its agents. This analysis, which may require a site visit, will be based on interviews with sponsoring executives and system users and will be designed to substantiate all claimed benefits. Site visits will take place in July and August. This team will present its findings to a blue-ribbon judging panel of leading IT practitioners for final judging in October 1999.

IMPORTANT DATES

Deadline: Applications must be received by June 15, 1999

Notification: Winners will be notified in October 1999

Presentation: Awards ceremony takes place in early February at the *CIO* Enterprise Value Retreat. Winners will be profiled in the Feb. 1, 2000, issue of *CIO* Magazine.

ENTRY GUIDELINES

The system must have been operational prior to July 1, 1997 (yes, we really mean '97!).

- ▶ Entrants must agree to be featured, along with their systems and organizations, in a *CIO* article.
- ▶ Entries must be complete (see checklist at end of application).
- ▶ Entries must be on 8.5-by-11-inch paper, one side per sheet.
- ▶ All entries must be computer-generated or typed; no handwritten entries will be accepted.
- ▶ An additional copy of the entry should be sent on a 3.5-inch disk in a format compatible with Microsoft Word and Microsoft Excel.
- ▶ The application form may be reproduced.
- ▶ Only one entry per company will be considered.
- ▶ Entries must be made jointly by the *CIO*/IS executive sponsor AND by the business sponsor for whom the system delivers value.
- ▶ IT vendors, public relations and advertising companies, consultants and other third parties may NOT apply on behalf of another company. They are encouraged to forward this form to the "owner" of the system or to contact *CIO* Communications to recommend that an application form be sent to the client.

Presented By
CIO Communications, Inc.



Proudly Underwritten By



1 COMPANY/BUSINESS UNIT

Name of parent company

City, state where headquarters are located

Publicly or privately held?

Annual revenues

Industry

Name of business unit or organization

City, state where located

Number of employees at business unit

URL

2 ENTRANTS

A. Name of entering IS executive/system sponsor

Title

Name of division, department or unit

Address

City

State Zip
() ()

Telephone Fax

E-mail

B. Name of entering business-unit executive/sponsor

Title

Name of division, department or unit

Address

City

State Zip
() ()

Telephone Fax

E-mail

3 SUPPORTERS

Please list four people who are willing to be interviewed with regard to the system, its development, its use and the value returned. At least one should be a member of the technology team that developed the system and should have played a significant role. At least one should be a primary user from the sponsoring business unit. The other two may be from either organization or may represent suppliers, customers or others intimately familiar with the system.

A. Name

Title
() ()

Telephone Fax

E-mail

Reason for inclusion

B. Name

Title
() ()

Telephone Fax

E-mail

Reason for inclusion

C. Name

Title
() ()

Telephone Fax

E-mail

Reason for inclusion

D. Name

Title
() ()

Telephone Fax

E-mail

Reason for inclusion

For more-detailed information on the type of data the judges would like to see, including a model application, please visit our Web site at www.cio.com/eva.

4 THE NOMINATED ORGANIZATION

Please include your most recent annual report or 10k; a corporate brochure; and any other relevant material that will help describe your company and its standing within its industry.

5 THE NOMINATED SYSTEM

Tell us about the nominated system and demonstrate its importance to the organization by completing the following sections. Please limit your material to one or two pages.

System Description: In one sentence or less, describe the system or IT initiative you are nominating (e.g., order-entry or sales-automation system; global intranet).

Date Deployed: Please indicate when the system was fully rolled out. If all users were not online by **July 1, 1997**, please detail what went live when.

Technical Profile: Briefly describe the technology of the nominated system, including its architecture; hardware, software and development tools used; and networking/communications hardware, software and services. Please include the names of all major vendors and products.

Technical Excellence: Describe the degree of overall technical innovation of the solution (does it employ cutting-edge technology?) and its uniqueness within your industry (is this an industry first or second, or is this a common solution?). Please be as specific as possible and include supporting data.

6 BUSINESS VALUE

This is the most important part of the application!

Describe the primary business objectives of and value derived from the IT investment.

List and prioritize the three (3) most important contributions the system has made to the business. Make sure to describe not only what the value is but how it was achieved. Include details and supporting data whenever possible. Please limit this section to a maximum of three pages.

7 FINANCIAL RETURN

Provide a detailed, one-page summary of the nominated system's investment costs (including all up-front development expenses and annual maintenance charges). Also provide details of the financial returns (including increased profits, reduced costs and indirect cost-avoidance). Be specific about where the money is going/coming from, and distinguish between actual and projected costs/returns.

This data is required to make it past the first round of judging. If your company is selected as a finalist, you may be required at that time to fill out a standardized table detailing specific costs and returns. *CIO* reserves the right to publish relevant costs and returns that establish the claimed financial impact of the system; the willingness to divulge this information for publication is a condition of entry.

8 TRUTH OF INFORMATION RELEASE

The following release must be signed by both nominating executives if the application is to be considered. Unsigned releases will invalidate the entry.

I hereby state that the information provided is true and complete to the best of my knowledge and belief.

I authorize the release and use of, in connection with the CIO Magazine Enterprise Value Awards program, any and all materials furnished by me or others at the company contacted for this judging. I understand that information submitted on this application or subsequently gathered during the evaluation and judging process may be used in articles or any other type of publicity relating to the CIO Magazine Enterprise Value Awards program.

I also authorize the release and use of my name, my company's name and my likeness, including but not limited to any photographs and any recording of my voice or image that may be taken of me for *CIO* Magazine. I agree that no compensation shall be due me or my company for such usage.

I recognize that failure to meet these conditions or to provide sufficient material that can be published can cause the application to be rejected at any point in the process at the sole discretion of CIO Communications.

1. Signature of nominating IS executive Date

2. Signature of nominating business executive Date

9 OTHER EDITORIAL OPPORTUNITIES

If you are not selected as an award recipient, are you willing to be contacted for inclusion in other articles in *CIO* Magazine?

Yes ☐ No ☐

How did you obtain this application form?

- ☐ Saw the ad in *CIO* Magazine
☐ Received a mailing from CIO Communications
☐ Came across it on the cio.com Web site
☐ A consultant recommended we apply
☐ A PR or ad agency
☐ An IT vendor/service provider
☐ Other (please identify)

CHECKLIST

Have you filled out...?

- ☐ **Company/Business-Unit, Entrants and Supporters Information**

Have you included?

- ☐ **Annual report or 10k and corporate brochure**

Have you included on separate pages...?

- ☐ **Nominated System (1 page)**
☐ **Business Value (3 pages)**
☐ **Financial Return (1 page)**

Have both entrants signed and dated...?

- ☐ **Truth of Information/Release**

Have you checked off...?

- ☐ **Other Editorial Opportunities**
☐ **How you learned about the CIO Enterprise Value Awards program**

DEADLINE: JUNE 15, 1999

Mail to: CIO Enterprise Value Awards • c/o Lisa Kerber • CIO Communications Inc.
492 Old Connecticut Path • P.O. Box 9208 • Framingham, MA 01701-9208
Visit our Web site at www.cio.com/eva

PREVIOUS WINNERS

1999

Capital One Financial Corp.
The SABRE Group
SBC Communications Inc.
The MITRE Corp.
PPG Industries Inc.

1998

Black & Veatch
New York City Department of Finance
Procter & Gamble
State Street Global Advisors
Tech Data Corp.
U.S. Environmental Protection Agency

1997

Bell Atlantic Corp.
The Chase Manhattan Corp.
Fidelity Investments
MacGregor Medical Association
Schlumberger Ltd.

1996

Brigham & Women's Hospital
Gensym Corp.
McDonnell Douglas Helicopter Systems
Rockwell Space Systems Division (SSD)
Telogy Inc.
United HealthCare Corp.

1995

APCOA Inc.
Commonwealth of Massachusetts
PCs Compleat Inc.
Hyatt Hotels & Resorts
Caterpillar Inc.
Kmart Corp.

1994

SynOptics Communications Inc. (now Bay Networks Inc.)
Complete Health Services Inc.
Los Angeles County Department of Public Social Services
AT&T Universal Card Services Corp.
Chicago Bureau of Parking
South Florida Water Management District

1993

The Perrier Group of America Inc.
New York City Transit Authority
Medical Center of Delaware
Texas Instruments
Lone Star Gas Co.
Travelers Managed Care and Employee Benefits Operations

CIO ENTERPRISE VALUE AWARDS
HONORING BUSINESS ACHIEVEMENT THROUGH THE INNOVATIVE
USE OF INFORMATION TECHNOLOGY

Presented By
CIO Communications, Inc.



Proudly Underwritten By



To Do



To Do

- Become an IT Strategy Expert...
- Shorten the Planning Cycle...
- Convince Executive Management...
- And Create a Process that Works for the Entire Organization.

Sound Impossible? Not if You Know Where to Start...

Implementing IT Strategies for CIOs

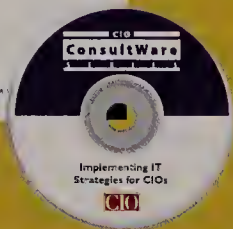
One of Our Most Requested Products...

Implementing IT Strategies for CIOs is a comprehensive, information-rich research product that answers all your questions regarding the IT strategy process. For \$2,295, you receive:

- An 80+ page benchmarking report.
- A CD-ROM (and diskettes) containing 250+ pages of value-added intellectual capital—including tested and proven models, methods and practices drawn from the actual experiences of leading companies; and customizable reports, memos, and presentation slides and templates.



Implementing
IT Strategies
for CIOs



Peer Product Review

Thank you, CIO... The CIO ConsultWare Implementing IT Strategy product has proven to be literally worth it's weight in gold. Thanks to the validity of the information presented, I was finally able (after trying for more than a year) to convince my executive management team to form an IT Steering Committee and to enable IT within our company to shift from a purely background support role to an active partnership role within the organization.

Edwin L. Martinez
Director, Management Info. Systems
Micro Optics Design Corporation

The CIO ConsultWare Series™

For more information or to download a demo, visit our Web site at www.cio.com/consultware. To order any CIO ConsultWare Series research products, contact Dot Caspersen at 508 935-4040 or email your inquiry to research@cio.com.

CIO ConsultWare is produced jointly by CIO Communications and ICEX, an independent research firm.



THE CIO CONSULTWARE SERIES™ INTELLECTUAL CAPITAL THAT MAKES YOU THE EXPERT

PROJECT MANAGEMENT

CHOOSE your pilot group from the best and brightest. A small, fringe business unit that is not involved in the most important day-to-day work of the company won't be regarded as a good test bed for software and processes intended to be used by everyone in the company. "Demonstrate that you're involving enough different people so that the effects aren't contained within one small niche," says Carl Frappaolo, executive vice president of the Boston-based Delphi Group. The business unit in which the pilot is being conducted should be high profile, have a reputation for relevance and importance to the rest of the company and have people who are respected by their peers.



If the **Siemens** salespeople had trouble remembering how to work the new lead system, then Manager of Sales-Force Automation **Susan Dale** knew the software was too complex.

At Amex, Cashin chose the brokerage group because it was a fast-growing unit that had been underserved by the IS department in the past. Also important, the group size and the number of transactions it handled were both right for a pilot. The business—brokerage services—changed rapidly and the group itself had an appetite for change.

If no particular group jumps out as a pilot candidate, some companies try to cherry-pick from all the groups that will be affected. At the Santa Clara, Calif., office of Siemens Information and Communications Networks' Enterprise Networks Division (END), the pilot implementation team went to the area vice presidents of all the division's sales organizations and asked them to choose people who were leaders in their group to take part in a pilot of a new sales-force automation software package. The project goal, to increase sales productivity by automating the handoff from the marketing department's call centers, which generated leads, to the salespeople in the field (a process that basically consisted of scribbled notes and voice mail) was not welcome. Sales representatives from END's national accounts division had boycotted the last attempt at automation and were still feeling pretty good about their Daytimers and pens. That's why the call went out—to get buy-in from the area VPs, who would coax their people into using the software. "We also did our own choosing," says Susan Dale, manager of sales-force automation, "and we didn't leave out people who showed resistance."

What the people chosen to participate in the pilot had in common was that they were all good salespeople. "We looked for people who, if we were hiring more people, we would hire them," says Dale.

START small, be careful and don't rush. Before Cashin and her team began the workflow pilot that would eventually involve 300 participants, she put the new software on the machines of 12 people and had them work for two weeks before gradually adding more people. The slow start helped verify that there were no major problems lurking after all the planning and discussing and software development. "We needed that final check-in from business people saying, 'Yes, we see the new functionality, and yes, it is doing what it was designed to do,'" says Cashin.

This gradual beginning also helped Cashin control the waves of problems and suggestions that she knew would come rolling in once people actually began using the system to do their jobs. Similarly, Siemens capped participation in its pilot at 45 out of a total sales force of 450. The percentage here is less important than the number. Pilot project managers find that the sweet spot for participants usually peaks somewhere between 40 and 60. More than that and

evaluating the project can get too complex.

By getting some major problems out of the way with the small group, Cashin could focus the rest of the pilot participants on suggesting enhancements rather than identifying bugs. A companywide obsession with bugs could easily have done serious damage to the project.

REMEMBER that you're not working in a vacuum. You can only do so much to make a process work better internally if the biggest bottleneck lies outside. Even as Cashin and her team worked to eliminate the paper trail in the new account application process, she found that the rules of the National Association of Securities Dealers (NASD) began to get in the way. The NASD requires a high-level securities executive to sign off on new accounts, which meant that Cashin had to keep the original paper application flowing through the process pipe simply to get the required signature.

Just as Schillat took her case to Holland to try to resolve Heineken's home office bottleneck, Cashin and her team went to the NASD with a proposal for electronic signatures. By designing a second tier of security and passwords so that only the appropriate executives could access the applications and create an electronic signature, Amex satisfied the NASD's concerns and ended the paper chase.

TEST everything, including the humble PCs. Most IS departments understand the need to simulate the expected loads that the new software will put on the network (several software-based testing tools are available for this) as well as test for any network software incompatibilities. But many IS groups fail to make sure that the people using the new system will be able to get it to work on their own computers. At Amex, Cashin's team laboratory-tested the variety of PCs and laptops the participants would use during the pilot to make sure the new software was compatible with what was already loaded on the machines.

FEEDBACK is good; timely feedback is better. One of the great advantages of pilot testing new processes and applications is the ability to modify the system while the issues are still fresh in everyone's mind. While piloting the new sales-force automation system at Siemens, Dale's team provided a place on the screen to click so that participants could offer suggestions and opinions. Sometimes the comments would be, "I don't remember what you told me about how to do this part," or "This part is confusing; I don't understand it." "We realized that if they weren't remembering something from month to month it was too complex," Dale says, adding that this kind of learning comes only when pilots depend on the system to get their jobs done.

STOCK your pilot project with parachutes—just in case. When Heineken USA's customers in Florida began using Hops, Schillat had two things working against her. One was their comfort level with the old way of ordering—sitting down with the local Heineken representative to figure out how many types of beers to order and which ones were on special promotion, then massaging the order so that it would fit neatly into one of Heineken's shipping containers coming from Holland. Weaning customers from that time-consuming but cozy approach wasn't easy, and the glitches in the new system didn't help.

"In the beginning, it was very rocky," says Schillat. About six months after we started we had to do an entire server upgrade because the system was moving too slowly."

In the meantime, Heineken didn't abandon the old process. And although Heineken didn't encourage its distributors to use the fax machine, simply knowing that they could fax in the order as a backup made them comfortable enough to give the new system a try.

"At first, everyone looked for workarounds," recalls software developer and consultant Frank Fuerst, president of B2B Technologies LLC in Atlanta, who helped Heineken develop the system. "The first month just about everyone faxed in their orders after they made them online," says Fuerst. "The second month, most of them did it exclusively online."

MAKE your test group feel special. During the Hops project, no request from the distributors was too large or too small. "We would go down to Florida with a team of two or three people and do whatever it took to get a distributor hooked up to the Internet," says Schillat. "We'd even do things completely unrelated to the

project, like troubleshoot their PCs.

Schillat also pumped up the distributors' enthusiasm by inviting them to headquarters, all expenses paid, to chat with the big shots and view presentations. As Hops took hold among the distributors, Schillat began cutting back the perks. "But we never stopped telling them, and we were careful to demonstrate that we were grateful for their participation," she adds.

NEVER leave your test group alone. Like Siemens, PeopleSoft Inc.—a maker of ERP software—struggled to get employees to accept a new sales-force automation tool which, like Amex's, was designed to improve handoffs between marketing and sales as well as to increase sales-cycle efficiency and decrease reporting. To facilitate communication with the pilot participants, the IS project team created a "buddy system." Each team member was assigned four or five salespeople whom they had to call at least once a week, updating them on the overall progress of the project and checking to see what specific problems they had with the new system. The project team tried to keep these chats upbeat. "If we wanted them to be enthusiastic about the project, we had to show enthusiasm ourselves," says Jim Alexander, PeopleSoft's director of information systems.

Every Monday at the team's staff meeting, each member would report on what the buddies had to say. The team member whose buddies had the highest usage at the end of the pilot phase won a free weekend getaway.

The buddies also took the group's focus off IT and helped Alexander and his colleagues get a much clearer idea of how the business worked.

Pilots aren't just for testing anymore; they're for learning—about your company, about your company's future.

"This was an opportunity to talk to people in the business about the business as opposed to the system," says Alexander. "You can say a system does A, B and C, but until you know what the business does with the system, you haven't gotten a full understanding of it."

Looking back on her experience with Hops, Schillat says a little naiveté goes a long way. By pushing the goals of the pilot beyond that of simply testing new forecasting software, she shook Heineken's supply chain to its core and moved the big brewery toward a new strategic direction.

As the stakes continue to rise in software implementations, companies need to give pilot projects the same kind of breathing room that Heineken gave to Schillat's effort. Pilots aren't just for testing anymore; they're for learning—about your company, about your company's future. When a pilot flies high, the view can be breathtaking. 

Senior Editor Christopher Koch can be reached via e-mail at ckoch@cio.com.

Fighting Fragmentation

Avoid inconsistency that alienates customers

BY BOB CHATHAM

INTERNET COMMERCE COULD BE the most divisive issue companies will ever face. Not since the introduction of the telephone in 1876 have companies had to deal with a new two-way communications channel to their customers.

The whippersnapper Web joins the established telephone and in-person interactions as a point of contact between customers and vendors. Given that dynamic, an e-commerce

site, despite its promise, can actually lower the quality of a company's customer service. Without thoughtful integration of those distinct channels, people who place orders on the Web will be offered only apologies for incompatible systems when they call toll-free customer service lines to check their orders. This trend toward fragmentation is already evident. Forrester surveyed 50 Global 2000 Internet commerce sites and found that only

16 percent were integrated with existing customer service systems.

To combat this rift, Forrester believes companies must adopt a new, loosely coupled integration strategy that we call federated integration. Using products available today, it is key to supporting fast-moving business opportunities and is the weapon to slay the next Y2K-scale problem: application integration. If ignored, that problem will cripple business flexibility and undermine IT's credibility with the business units. Federated integration is largely home-grown, requiring a serious commitment, but it will produce a system that can manage costs and avoid gratuitous reinventing.

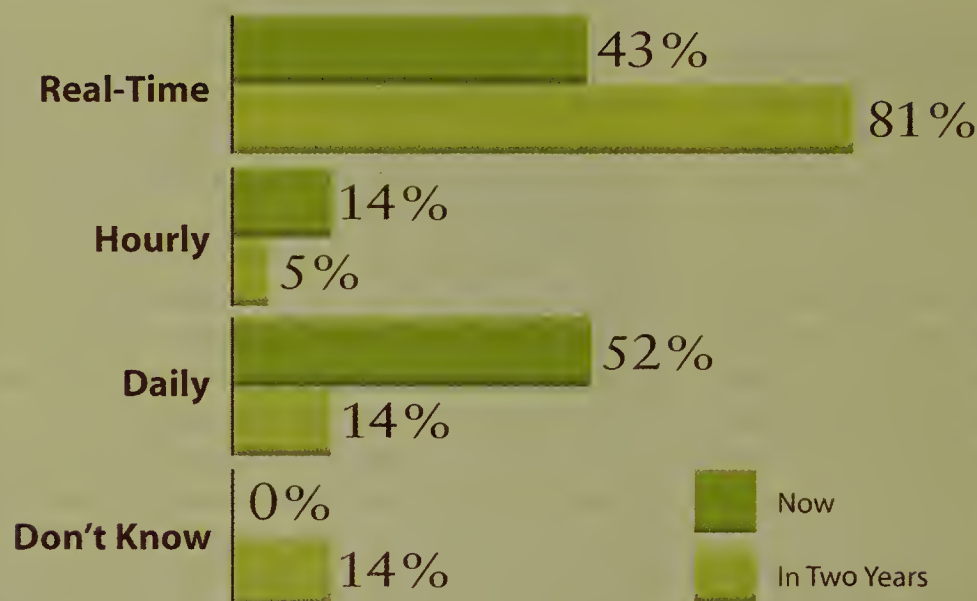
The Challenge

As e-commerce sites evolve, grow and tie in to existing systems, corporations will find themselves with more complications than solutions. Forrester's research shows that simple point-to-point integration between Web sites and back-end systems will not scale to support the real-time trading promise of e-commerce. Not only that, the volume of data transfer is expected only to grow, and the quality of that data will need to be top-notch.

Sixty-six percent of the IT executives we surveyed said that hourly or daily batch updates are sufficient today. But 81 percent of these early e-commerce adopters said that in two years they will have Web transactions that will require real-time connectivity with corporate systems (see "Synchronizing Web Data," left). Yet they expressed reservations about opening back-office data stores, particularly in businesses with sensitive data and privacy issues. One survey respondent from a health-care services provider notes, "Our goal is to access data in real-time, but no one feels comfortable running Web trans-

Synchronizing Web Data

How often are Web and corporate data synchronized?



Percent of 21 Fortune 1000 companies interviewed (multiple responses accepted)

SOURCE: FORRESTER RESEARCH INC., 1998

If You Can't Manage Your TCO Today... We'd Hate To Be In Your Shoes Tomorrow!

Managing your Total Cost of Ownership (TCO) is more than a "catch phrase" — it's a necessity. And the best CFOs and CIOs understand that the best way to lower TCO is through effective asset management. Not asset tracking, but asset management that includes contract management, procurement management and portfolio management. Only one software provides all of these capabilities today... AssetCenter™ from Peregrine Systems®.

Call us and find out what companies like Shell Services International, NationsBank and Mercedes Benz already know. AssetCenter, the best way to manage your TCO!

FREE CD — Call us today!

Peregrine
S Y S T E M S®

The Infrastructure Management Company™

World Headquarters • 12670 High Bluff Drive • San Diego, CA 92130 • 1-800-632-6347 ext. 222 • www.peregrine.com

Peregrine Systems is a registered trademark and AssetCenter and the Infrastructure Management Company are trademarks of Peregrine Systems, Inc. All other products/tradenames may be registered trademarks or trademarks of their respective companies.

Forrester View

actions against our main corporate databases.”

Cost is another impediment to real-time connectivity. “We fear that the cost and complexity of synchronization will increase by an order of magnitude and become prohibitive to our subsidiaries. But batch replication hasn’t allowed us to reflect sudden changes—and that’s something we need,” says a representative from a business services company.

Forty-three percent of the IT executives we interviewed expect the amount of data moving between Web and corporate systems to increase by a factor of 100 or more over the next two years.

These online front-runners told us they spend an average of 25 percent of their commerce development and software budgets integrating with existing systems. The money adds up because of a host of nagging problems. The most troubling are the mismatch between back-end architectures and Web front ends and the dubious integrity of back-end data. “The Web front end is advanced and the back end isn’t,” says one computer company executive. “Screen scraping [adding a graphical user interface] is an option, but it’s like taking a Ferrari dashboard and sticking it into a Chevy Nova—it doesn’t make the car any better.”

These escalating demands will drive IT’s current one-off integration approach into crisis. To avoid missing business opportunities, companies must rationalize their integration investments under a new architecture that will leverage existing applications to solve new problems, enable efficient implementation of new processes and limit disruptions to the business.

A Solution: Federated Integration

Federated integration spans packaged applications, custom development, systems management, data warehousing and internal ad hoc efforts. It lets a company use its existing applications as building blocks to support rapidly changing market dynamics. With integration logic extracted from applications, large-grained business process changes—such as adding a new partner’s customers to a consolidated account balance—become easier to implement. And changes required for integration don’t intrude on an application’s existing purpose. Ideally, federated inte-

gration yields a four-tier foundation of services for connecting, transforming, applying and managing data.

In the first tier, connection services provide basic network connectivity, communications protocols and security. Applications can be integrated by exchanging data or events; for example, “update customer address” or “place order.” Connection services encompass both data-level and event-level integration in a consistent way, regardless of the transport method used.

Second-tier services transform data and events so that they are understood by all applications. Each application translates its native format into the common format. This approach enables new applications to be integrated but pre-existing transfor-

tical basis. Integration skills are a competitive advantage that should remain in IS’s control.

To get started, companies need to recognize that integration clusters are the efficient solution. Loose affiliations of vendors anchored by a strategic middleware supplier form federated integration clusters. To make integration work, companies will have to make deep investments in tools, technologies and software. And to get the most advantage from these, firms should focus on a single cluster. Four clusters are emerging, each aligned with a particular component platform: BEA Systems Inc., Microsoft Corp., IBM Corp. and Oracle Corp. Although partnerships are nascent and commitments largely untested, market momentum will push

Firms must build federated integration themselves—it doesn’t exist as a single product in the marketplace.

mations are not affected. These services are available from vendors such as Constellar Corp. and Active Software Inc.

The third tier, application services, consists of the business logic needed to implement new processes or augment existing applications. The logic runs on servers from vendors like Netscape Communications Corp. and NetDynamics Inc. or message brokers from vendors like NEON Inc. or Vitria Technology Inc. These keep improving as technologies like Enterprise JavaBeans and XML roll out.

Finally, federated integration is an enterprise-scale activity requiring robust administration tools. In the fourth tier, management services reach into all integration tiers to provide functions like exception-based alerts, system testing and automated performance tuning. Vendors like NasTel Technologies Inc., NetIQ Corp. and Computer Associates International Inc. build on standards like SNMP and XML (which provide a clear interface to management data) to deliver these services.

Getting to the Solution

Firms must build federated integration themselves—it doesn’t exist as a single product in the marketplace. Although systems integrators have a thriving business, CIOs should use them only on a tac-

these clusters to coordinate their technical support plans and market their offerings.

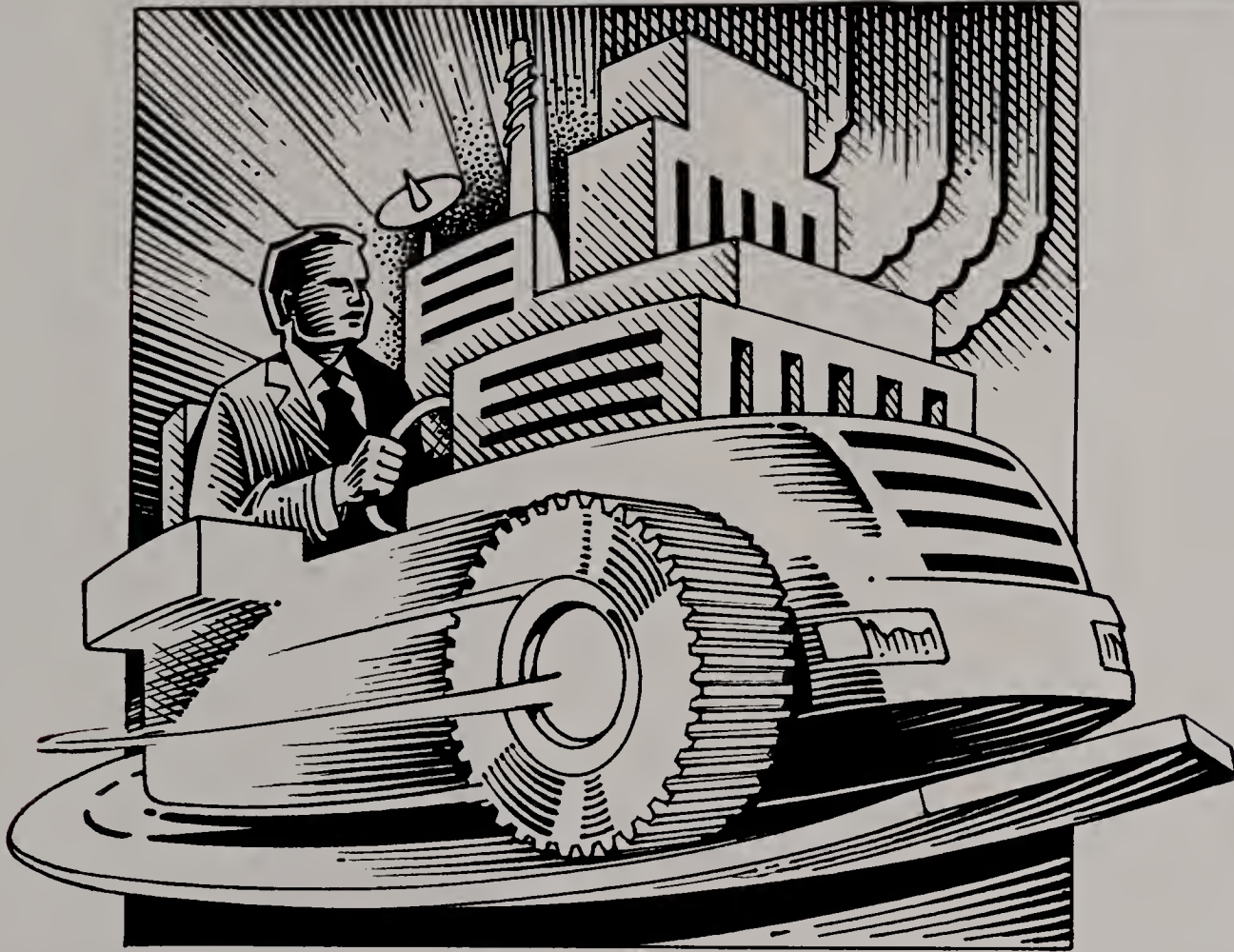
A company will select a cluster based on its component platform choice and the level of commitment it has to packaged applications or database vendors. If these factors don’t naturally lead to a single integration cluster, the company should partition its application portfolio to use separate clusters. Forcing a particular application to touch more than one integration cluster will forfeit any economic efficiencies or speed-to-market benefits.

Once a company selects an integration cluster, it must decide on a case-by-case basis whether to integrate applications by exchanging data or by issuing and responding to events. This decision involves balancing four factors: response time, quantity of data, accessibility and cost (see “Choosing Data-Level Versus Event-Level Integration,” Page 76). Each approach has its own challenges.

Data-Level Integration

Firms must concoct a single way to cope with the huge variety of back-end data created over the past 20 years. Figuring out how to extract the right data is only the starting point. The harder part is creating—and enforcing—common data formats. The common format is required for exchanging data, but more important

Drive your Business harder and faster



WWW active-enterprise.com

1-800-JBA-INTL

jcrowford@jbana.com

847-590-8164

JBA, 3701 Algonquin Road, Suite 600, Rolling Meadows, IL 60008

with JBA *@ctive* Enterprise

Harder on costs, faster on service, better on margins. These are the goals your business can achieve with JBA's *@ctive* Enterprise Series.

With proven ERP performance, advanced Supply Chain design and real e-commerce capability powered by the latest Work Management engine, this is the vehicle to shift your business processes up a gear and overtake your competitors.

Join over 4000 mid-size companies that JBA has helped get more out of their businesses. Find out how they gain continuous added value from working with our people, products and know how.

Call us NOW so we can help accelerate your success in 1999.

Name

Title

Company

Address

City

State

ZIP

Phone

Ref: G049CI

Software driven by your business



Forrester View

it lays the groundwork for a consistent view of data across the enterprise.

To start, adopt a hub-and-spoke data architecture for moving data. The trick in data-level integration is to put as much transformation, application and management logic as possible in hubs and not in the original application. This leaves applications unscathed while centralizing responsibility and control. Data hubs like Constellar's Hub and Reliant Data Systems Inc.'s DCLE can handle this task.

The lack of a universal data "language" has been a huge barrier to data exchange until the advent of XML, which is supported by vendors including IBM, Microsoft, Netscape and Oracle. Firms will gain tremendous efficiencies by labeling their internal and external data using XML tools and servers from vendors like Microsoft and DataChannel Inc.

Event-Level Integration

Applications that must work together in real-time require event-level integration. It begins with an underlying messaging backbone such as IBM's MQSeries to provide connection services. Organizations must put messaging interfaces on applications and use message brokers to issue and respond to events. That takes programming. Vendors like Active Software and Netscape sell "adapters"—configurable software connectors that provide a messaging interface—for popular packaged applications, but companies must still code interfaces for custom applications. This task is made a bit easier with adapter toolkits, which Forrester expects to proliferate—unfortunately, without a standard—in the next year.

Event messages are routed to applications using message brokers from vendors like Tibco Software Inc. and Saga Software Inc. Changes in business processes can be implemented as business rules on the message broker.

Choosing Data-Level Versus Event-Level Integration

Characteristic	Defining question	Explanation
Response time	1. How rapidly must changes in one application be available to other applications? 2. How closely do applications work together?	If changes can be copied to other applications every 15 minutes, then data-level integration is appropriate. If applications work closely together (for example, when verifying a payment), then event-level integration is required.
Quantity of data	How much data is being synchronized?	If large volumes of data need to be synchronized (as in data warehousing), data-level integration is the efficient choice.
Accessibility	How accessible is the application?	Data-level integration is less intrusive than event-level integration. Also, some applications can be tapped only at the data level, and others like SAP are accessed through an API.
Cost	Does the benefit justify the cost?	Event-level integration is 10 to 20 times more expensive than data-level integration.

Price and Payoff

Federated integration has a \$1 million get-started price. This initial cost is consumed by servers, software and labor to create data formats, reverse-engineer existing systems and manage the whole effort. Remember that companies already spend 30 percent of the massive price of packaged application implementation on integration. And the cost of not doing it at all is lost customers, unhappy business units and, perhaps, replaced CIOs.

To make it easier for suppliers, partners and customers to tap into corporate systems, innovative organizations will clarify their data models and publish them on the Web. By removing the barriers to understanding corporate applications, wise companies will enable deep integration across their supply chain.

Companies on advanced integration trajectories are creating a commerce application program interface (API) that will surface their business processes to the Net. To maximize API's value, firms must choose a component platform—Com/Dcom or JavaBeans/Corba—strategic for their commerce efforts. This discipline will set the stage for cost-effective development and site operation.

Meanwhile, companies undergoing back-end restructuring with ERP systems must bring commerce techies into the ERP team early. The extra effort will be worth the trouble in two ways: The ERP customization plan will include the commerce requirements, and the commerce investment can be trimmed to just the new middle-tier development that is complementary to the new corporate systems.

Despite all that seems new or changed, commerce site integration actually gives legacy systems a new lease on life. Therefore CIOs must find a way to keep legacy skills alive and hang on to people who understand the existing business systems—and ensure that they work well with the Internet commerce cowboys who will be driving commerce integration.

Federated integration will unite investments, energize the firm to tackle integration challenges and enable rapid rollouts of new business processes. All of which will head off the hidden killer of incompatible commerce channels. **CIO**

Bob Chatham, a senior analyst at Forrester Research in Cambridge, Mass., can be reached at bchatham@forrester.com.



Exercise total control.

Timbuktu Pro remote control software can help you keep support costs in line.

It's true. You can boost help desk/call center performance, save thousands or even millions of dollars in support costs *and* keep your end users from being such cry babies.



Timbuktu Pro™ from Netopia allows you to view and control end users problems right from your desktop. You fix situations remotely, reducing your phone time, on-site visits and end user tantrums. Downtime decreases, productivity soars. Timbuktu Pro provides training at the moment it's relevant, improving end user skills.

Amazingly, customers report closing 90% of all calls during the first phone call. One company of a thousand employees projected savings of almost \$380,000 the first year, with an 800% return on investment over a five-year period.

Interested? Call **1-800-463-1956** to receive your *free* Timbuktu Evaluation Kit including Timbuktu Pro software, the *Cost Control Through Remote Control* whitepaper and analysis tool and more. Or visit **www.netopia.com/try_tb2.html**. Get your support costs in line today!

Timbuktu Pro

Lower your costs, not your support.

Cross platform compatibility with Windows® 98, Win 95, Windows NT 3.51 and 4.0, Win 3.x and Mac®OS.

© 1999 Netopia, Inc. All rights reserved. All trademarks are the property of their respective holders.

Emerging Technology

THE STATE OF THE ART,
NEW PRODUCTS
AND STAYING AHEAD
OF THE CURVE

Edited by Howard Baldwin

A Change of Interface

Speech recognition fosters better customer service through self-service

BY BILL ROBERTS

S EVEN OF EVERY 10 PHONE CALLS customers make to Sears, Roebuck and Co.'s 845 department stores are transferred to sales associates in specific departments. Sears used to need about 3,000 operators—three or four per store, with only one on duty at a time—to handle the calls. Customers might have waited as many as 20 rings before the operator answered, and one in four calls was misdirected.

To state the obvious, this was not good. And Manager of Store Operations Jim Dutton knew it. So last year Sears, based in Hoffman Estates, Ill., outsourced its call center operation, reassigned its operators and launched a speech-recognition system to handle most of the calls going to specific salespeople. Speech recognition, a technology whose time seems to have arrived, now handles 56 percent of 120,000 daily calls with a better than 90 percent accuracy rate, says Jan Drummond, a company spokeswoman.

Sears won't disclose what the project cost. Analysts estimate a price tag, including hardware, call center software and speech-recognition technology, of at least a half-million dollars. Drummond does say the project paid for itself in a few months. William Meisel, president of TMA Associates, a Tarzana, Calif.-based speech-recognition consulting firm, estimates that Sears saves about \$96 million a year. He bases that estimate on potential savings from operators' salary and benefits. "Speech recognition is a fundamental change in the phone interface."

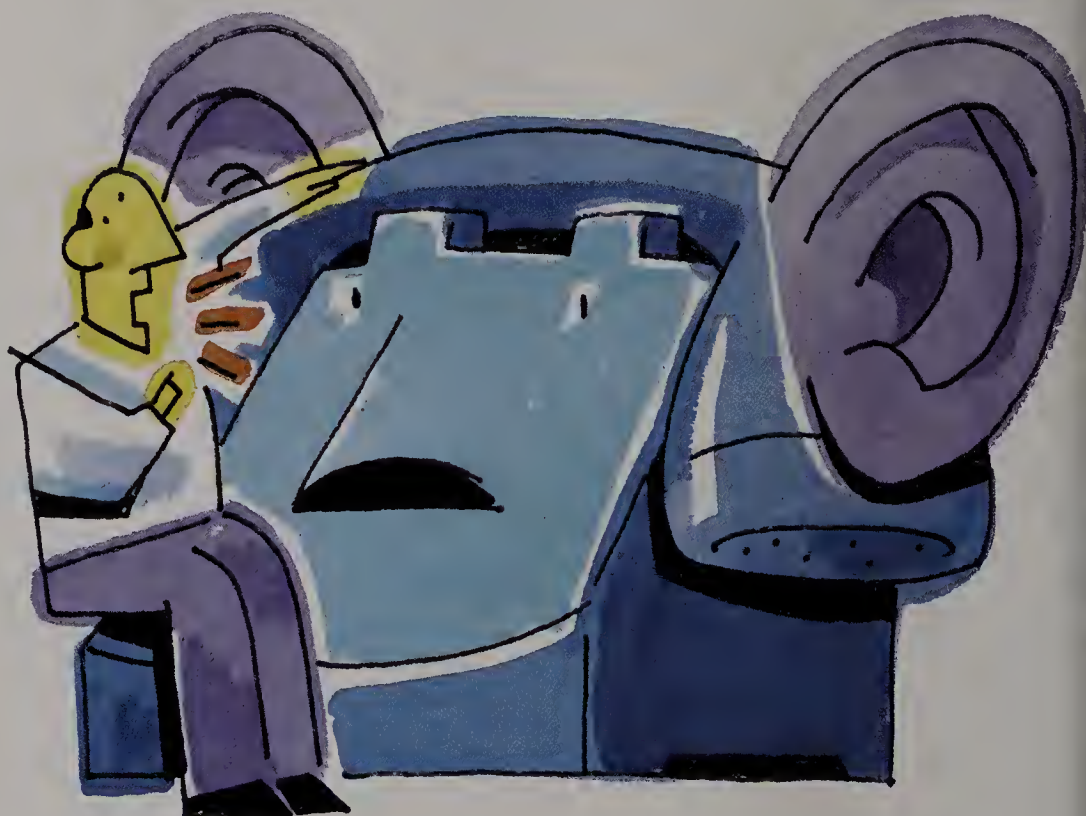
Companies have adopted speech recognition for internal use among employees or, like Sears, for customers. Department stores, stock brokerages, airlines, auto dealerships, phone companies and package deliv-

ery services use speech recognition for various self-service applications. The goal is better service. There's never been a friendlier user interface, says Bruce Parker, senior vice president and CIO at United Airlines Inc. in Chicago, which uses speech recognition for its employee reservations systems.

Speech recognition can augment or replace existing touch-tone interactive voice response (IVR) systems, whose lengthy menus can be frustrating to navigate. (For a related story on call centers, see "Holding Patterns," Page 54.) Some applications are simple—a basic off-the-shelf application directory can store up to 500 names. Applications like the one at Sears are more complicated, involving tens of thousands of words and phrases.

Supporting Self-Service Applications

Speech recognition first appeared in the 1960s when it was developed in university and corporate laboratories. Since the dawn of the personal computer era, using speech recognition to command and control the desktop has been a lofty goal. The ability to dictate documents was another promise. The technology is closer than ever to these goals,



IN THIS SECTION

Plethora of Portals

Wireless Ethernet

Rollback Software

Programming with Dylan

Pen Computers

ILLUSTRATION BY ROBIN JAREAU

Still Managing Your Own IT Systems?

Start SMARTsourcing

Attend BrainStorm Group's SMARTsourcing Conference to formulate winning strategies and gain insight from industry thought leaders on the latest developments and advantages of IT Outsourcing.

Web: www.brainstorm-group.com | Tel: 508-393-3266

SMARTsourcing

CONFERENCE & EXPO SERIES

New Orleans • March 29-31, 1999

San Francisco • June 28-30, 1999

Chicago • September 22-24, 1999

New York City • October 1999

Produced by **BrainStorm**
GROUP, INC.
Conferences and Event Management



Series Co-sponsors

Aberdeen Group
Andersen Consulting
Bianco Hopkins & Associates
Computer Horizons
COMPUTERWORLD Careers
CSC
Cutter Consortium
EAI Journal

Earthweb
Enterprise Systems Journal
Evolving Enterprise
Giga Information Group
HexAware Technologies
IMRglobal Corp.
InfoServer

Intelligroup
Kanbay Corp.
KEANE
MERANT
Mercury Interactive
Millennia III
modis Solutions

Oracle
PeopleSoft
PKS Systems Integration
PricewaterhouseCoopers
RCG Information Technology
Sapiens Americas
Satyam Computer Services

SEEC
SOFTWARE Magazine
Solutions Integrator
Strategia
Triaxsys Research
Unisys
Viasoft

Emerging Technology

but speech recognition has really taken off in self-service applications.

Two things make this possible. The technology has become good enough for the limited vocabularies required by these applications. (*Limited* is relative: Some bigger applications have vocabularies of 50,000 words.) Second, computing power grew enough to handle the computational demands cheaply.

Details vary, but inside each product is a database of words and phrases that the system can understand when a caller speaks them, triggering certain actions: connecting a customer to a department, giving the status of a shipped package or letting the caller buy a stock. The more complicated the application, the bigger the database of words, phrases and pronunciation variations needed.

E-Trade Group Inc. in Palo Alto, Calif., which has an online trading Web site, also uses speech recognition to let clients buy or sell stocks over the phone. The application, called TeleMaster, has a vocabulary of more than 55,000 words and phrases. It recognizes company names and symbols and their synonyms. For instance, it understands IBM, International Business Machines and Big Blue. It also recognizes variations and synonyms for everyday words like yes—yup, yep, correct, right, affirmative. Colloquial expressions for yes such as uh-huh and OK and foreign affirmatives such as *si* and *oui* will be added as the application expands.

There's no shortage of developers offering products. Sears uses technology from Nuance Communications Inc. in Menlo Park, Calif. United and E-Trade use technology from SpeechWorks International Inc. in Boston. Nuance and SpeechWorks both offer tool kits and building blocks or objects for developing applications with large vocabularies.

Some developers aim solely at the telephone directory segment. Among them are Phonetic Systems Inc. in Burlington, Mass., and Registry Magic Inc. in Boca Raton, Fla. Phonetic Systems targets large—up to 250,000 names—enterprise directories. Registry Magic sells an automated operator, called Virtual Operator, that handles up to 500 names for \$12,000 or on a monthly lease for \$700. Other

The Personalized Desktop

Give employees access to the data and applications they use

IF THE INTERNET HAD A BUZZ-word of the month, the most recent one would be *portals*. Everybody wants to be the door to the Internet—apparently so that they can plaster the jamb, the panels and even the knob with advertising. But consider the idea of a portal for your employees, one they use to enter their workspace every morning. It starts with the browser, certainly, but you get to post what's pertinent to them—collectively or individually—in terms of projects, announcements or applications.



doesn't necessarily involve one or the other, but don't forget that Concur is coming from the perspective of a software developer that automates expense reports and purchasing (with its CompanyStore product). Nevertheless, the idea of a centralized entry point with a single sign-on password is compelling.

As for the buy-versus-build question of Employee Desktop, Neal Myrick, director of worldwide IT and facilities for software developer Visio Corp. in Seattle, scoffs. "I like to keep a lean IT staff. It's difficult when you build your own in-house systems to keep up with the pace of change. With Employee Desktop, employees can go one place, do all their administrative tasks with the company and get out of the sneakernet and paperwork-laden processes that every company has."

Myrick also believes that buying is simply much easier than building, especially when it comes to intranet applications. "Almost every week, I get somebody who says, 'Why do we need to spend money on this?' If anything'll kill a company wanting to do an intranet, it's executives who think that it's as simple as banging out some HTML code." When you consider the cost of getting database administrators who understand both SQL and building intuitive interfaces, Myrick says, buying your own portal is more economical.

—Howard Baldwin

PLETHORA OF PORTALS

Like most kinds of internal applications, you could probably have someone in IT build this to run on your intranet. But a couple of companies are tackling portal potential from different angles that sound interesting. One is Redmond, Wash.-based Concur Technologies Inc., best known for its Xpense Management Solution (see "Making Expenses Less Expensive," *CIO* Section 1, Jan. 15, 1999). It's expanding on the idea of a centralized place for administrative tools called Employee Desktop.

In a single Web-based interface, Employee Desktop consolidates a help menu and essential applications such as database access. It also includes four other sections: Approvals (a to-do list), Updates (progress reports on requests and projects), What's New (company news) and Tip of the Day (which could be anything from software tips to deadline notifications). You can also have links to corporate policies, training opportunities and a user profile so that employees can revise their own preferences.

How Updates and What's New are differentiated is a little confusing, especially if your business

Why don't fish close their eyes when they sleep?

If there's an answer in your enterprise,
Dataware Technologies will find it.

The knowledge in your enterprise drives business strategy. So as your business moves forward, it is important to link the decision makers in your enterprise directly to the knowledge that resides in the company. For over ten years, Dataware® Technologies has been doing just that — helping businesses meet the expectations of senior management by giving end-users access to the knowledge they need, thereby increasing the overall value of your enterprise knowledge. Dataware Technologies provides the most complete software solutions available for capturing, managing, and sharing all your organization's knowledge assets. Dataware links you to the knowledge and the people that have that knowledge in your organization, saving you time and money. Our building block approach allows you to implement a Knowledge Management solution in manageable steps, immediately connecting your people to the knowledge they need.

Link yourself to the answer to the above question, and receive our **free Executive White Paper** "7 Steps To Implementing Knowledge Management In Your Organization", by visiting our web site at www.dataware.com/fish today. Or call us at 1.800.229.8055 for more information on Dataware.

Linking People to Knowledge

WWW.DATAWARE.COM/FISH

USA One Canal Park, 2nd floor Cambridge, MA 02141 1.800.229.8055

Europe/Asia Keaton House, Widewater Place Harefield, Middlesex, UK UB9 6NS +44-1895-827200

© 1998 Dataware Technologies. All Rights Reserved. Dataware is a registered trademark and TeamDataware is a trademark of Dataware Technologies. All other trademarks contained herein are the property of their respective owners. Offer subject to change without notice.

Dataware
TECHNOLOGIES

Emerging Technology

developers include Via World Network LLC, a Minneapolis-based subsidiary of Andersen Consulting LLC that targets the travel industry, and Parlance Corp. in Medford, Mass., which targets telephone directory services.

ROI Measured in Weeks

Although dozens of small and large companies have adopted speech recognition to save money, few applications actually produce revenue. One that might some day is under development at BellSouth Corp. in Atlanta. BellSouth worked with SpeechWorks to develop a Yellow Pages product called VAL (voice-activated link) now being tested in Daytona Beach, Fla. BellSouth customers can call and ask for restaurant listings, news, weather forecasts and sports information.

"We're trying to decide whether an electronic Yellow Pages is a product that consumers will pay for or is simply an access mechanism for our customers," says David Shipps, associate director of business development in the electronic publishing subsidiary of BellSouth. "I suspect it's a little of both. We don't have a business model yet."

But most companies are fully capable of justifying the investment in speech recognition by the money it saves. At United, for example, employees, retirees and their family members—415,000 in all—would call the reservations desk to ask for routes and availability for flying standby, which is a company benefit. That came to between 1.5 million and 2 million calls a year, about 5 percent of the total to the reservations desk. CIO Parker says the speech-recognition application now takes most of those calls. The big advantage has come from transferring nonrevenue calls to the automated application, which lets agents serve paying customers more quickly.

The next place Parker is looking to use speech-recognition tools is in the existing AVR (automated voice response) arrival-departure information system. He does not foresee putting the full reservation system on speech recognition because with all the fare possibilities "it would be too complicated."

E-Trade is just one of several brokerages using speech recognition. Another is Boston-based Fidelity Investments. Molly Geaney, vice president of technology in the personal investments group, says Fidelity has two applications based on Nuance's technology. In 1998 Fidelity introduced an application that allows anyone, whether a customer or not, to call Fidelity and get information on more than 3,400 mutual funds by speaking a fund name into the telephone. Fidelity customers can also get account balances and trade funds on the phone.

Fidelity also expanded the application to the

LEADING

EDGE

Wireless Ethernet

NETWORKING TECHNOLOGY IS PRETTY MATURE, WHICH IS WHY you don't see too much on bridges and routers around here. But Glenayre Western Multiplex of Sunnyvale, Calif., has developed something you don't see every day—a line of wireless Ethernet bridges called **Tsunami**. They use both microwave and millimeter-wave bridges to provide both Ethernet (10MB per second) and Fast Ethernet (100MB per second) connectivity between point-to-point wireless connections separated by 1 to 50 miles. Five models are available—two that require licensing of the space they use on the radio spectrum, and three that don't require licensing (licensing is required depending on what frequency bands you're using).

According to Glenayre, wireless bridges running Ethernet and IP can be used for voice-over-IP, videoconferencing and other applications and enable networks to be up and running without the need for setting up



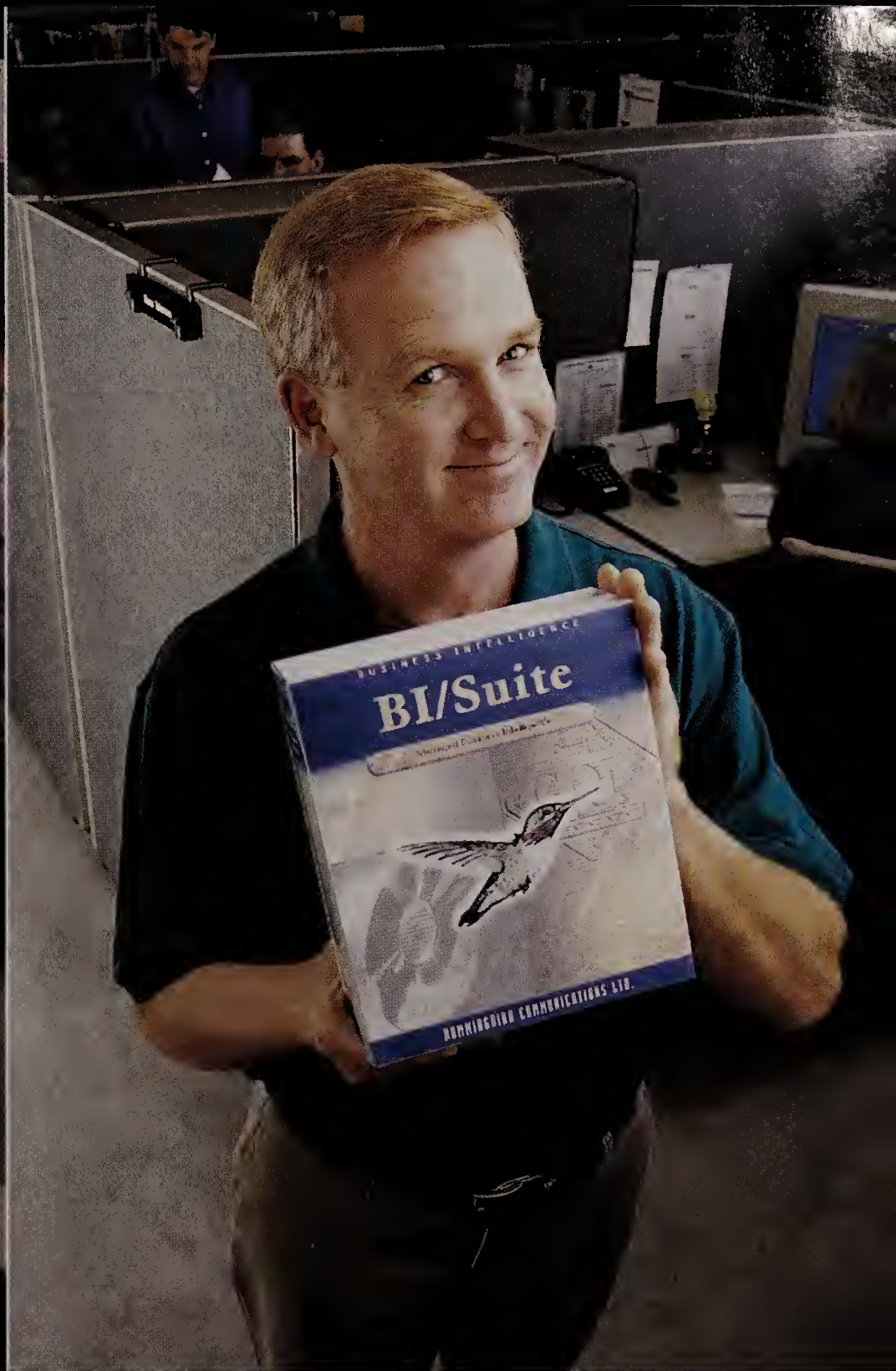
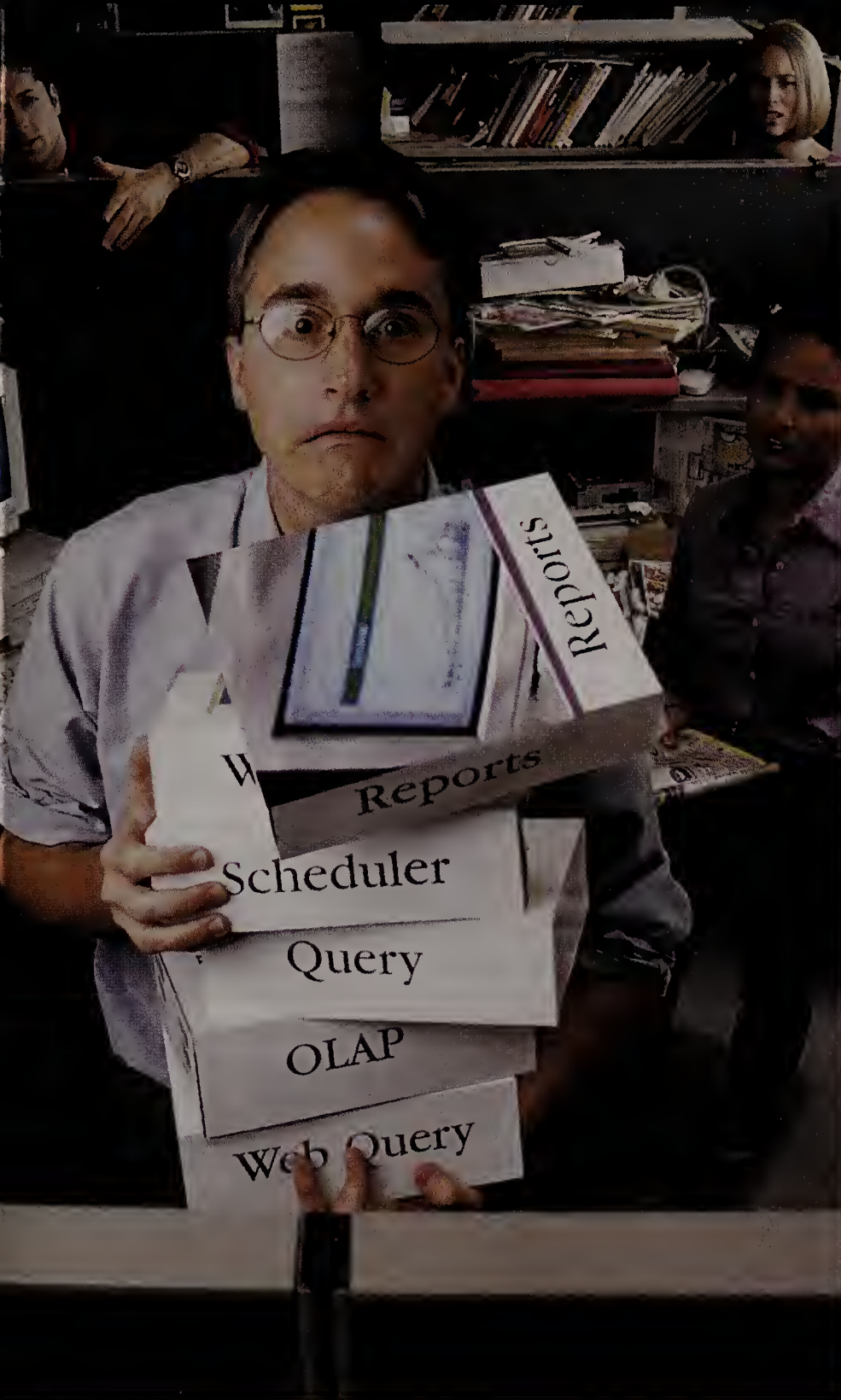
leased lines or running fiber. The bridges are designed to maintain maximum bandwidth no matter what the distance. Prices for Tsunami bridges range from \$18,000 per link for the 10Base-T

wireless bridges to \$35,000 per link for the 100Base-T versions, or \$70,000 per link for a fully redundant link (dual systems in parallel, with one as standby). For more information, call 408 542-5200 or visit www.wirelessinterconnect.com.

Bid Time Return

IF YOU WORK IN APPLICATION DEVELOPMENT OR PUBLISHING, YOU know there are software packages that let you do what's known as versioning. In application development, it lets you return to a previous version of a program if you accidentally introduce a glitch; in publishing, it lets you revert to a previous version of a story should you want to start the editing process from scratch. Wild File Inc. in Plymouth, Minn., has taken this idea and applied it to Y2K with its **GoBack** software. When problems—such as Y2K glitches—occur, it lets the user revert to a previous time. According to the company, the program will also work after virus attacks and unsuccessful software upgrades.

The software stores information about files on your hard drive, using about 10 percent of the drive's capacity. It can revert the entire drive to a previous condition, or it can retrieve specific overwritten or deleted files, even if they've been removed from the Recycle Bin. The \$70 software runs on Windows 95, 98 and NT. For more information, call 612 551-0881 or visit www.goback.com.



Which Web Business Intelligence Solution Would You Rather Manage?



Tel.: (416)496-2200
Fax: (416)496-2207
e-mail: info@hummingbird.com
www.hummingbird.com/bi/cio

When investing in business intelligence for your organization, the biggest challenge can be finding a rich solution that also delivers the lowest cost of ownership. The Hummingbird BI/Suite does just that. BI/Suite is a fully integrated enterprise business intelligence solution designed to meet all of your organization's query, reporting and OLAP needs, all with a single solution. BI/Suite lets end users take advantage of its rich decision support capabilities on the desktop or over the Web. And it satisfies IT's cost of ownership requirements by providing centralized systems administration, security and content management for both Web and desktop users alike.

So choose the easy-to-manage business intelligence solution that meets all your organization's needs with a single offering—BI/Suite. To find out more about Hummingbird's Business Intelligence Solution and get a copy of our lowest cost of ownership white paper, visit our Web site.

Emerging Technology

company's existing Touch-Tone Express system. Now, instead of having to key in a symbol, Fidelity customers can get quotes and balances and place trades by saying the name of a security or fund. This application takes between 250,000 and 300,000 calls a day.

The company is rolling out a natural language application that recognizes and acts on customer orders spoken into the telephone as a sentence ("Buy me 100 shares of XYZ at the market," for instance). Geaney says ROI is hard to figure, but customer satisfaction has been high and now representatives can concentrate on adding value to their services, such as giving portfolio guidance.

United, Fidelity, Sears and E-Trade each spent hundreds of thousands of dollars on speech-recognition applications. Less expensive applications also yield results. JM Lexus, a Margate, Fla., subsidiary of JM Family Enterprises Inc., installed Registry Magic's Virtual Operator. Bill Dowd, the dealership's information systems director, says he was so impressed with a demo that he signed up the same day. Virtual Operator directs customers to the department or individual they request. It has saved JM Lexus at least \$40,000 a year, which is what it would have cost to add two operators. The application is about 94 percent accurate, Dowd says, depending on the user's familiarity with it. "The ROI is in weeks not months," he says. "It was realized the day I didn't have to hire somebody to answer the phones."

The Achilles' Heel

Companies using these systems say a big concern was whether customers would want to talk to a machine. Most successful implementations train customers the first time they call in. The early adopters agree that just like ATM machines, it may take time for the public to accept speech recognition, but it's hard to imagine that it won't become common enough to make consumers wonder why companies don't use it.

One factor that makes speech recognition so appealing is the Web. Because most companies have or will build Web self-service applications, the adopters say, they've already got the business databases that can serve double duty for the speech-recognition application. All they need is the speech interface, the vocabulary and a connection to the business database. "We're using some of the same data modules we built for our speech-recognition application for our intranet," says United's Parker. "You have a high degree of code reuse that way." **CIO**

Bill Roberts, a freelance writer based in Los Altos, Calif., covers business and technology. He can be reached at brobert1@ix.netcom.com.

LEADING

EDGE

Marshal Dylan

SAY WHAT YOU WILL ABOUT APPLE COMPUTER INC. CONSISTENTLY snatching victory out of the jaws of defeat (or is it the other way around?), some of its research projects recently made strides in terms of usability and productivity. The Dylan programming language, for instance, was created to simplify programming. Cambridge, Mass.-based Harlequin Inc. has licensed Dylan and created **Harlequin Dylan Enterprise Edition**, a development environment designed to be as easy to use as Java but as scalable as C++. It incorporates support for Corba and the Internet InterOrb Protocol (IIOP); another Harlequin product, **Harlequin Dylan**, provides the development environment for Com applications (if you're unaware that one group of vendors, headed by Microsoft Corp., supports Com, and another, headed by Sun Microsystems Inc., supports Corba, consider yourself lucky).

According to Harlequin, Corba's neutrality lets applications written with it interoperate with C++, Cobol and Java. The new Enterprise Edition product contains a complete set of Corba features, including Corba 2.0 and parts of Corba 2.2. It also includes an object-request broker that can be redistributed free of charge; the price is \$799. For more information, call 617 374-2400 or visit www.harlequin.com/products/ads/dylan.

Take Two Tablets

ONE OF THE HARDEST THINGS ABOUT USING COMPUTERS outdoors is the glare. Fujitsu Personal Systems Inc. in Santa Clara, Calif., has tackled this problem with a "transflective" 8.4-inch display for its new **Stylistic 2300** pen tablet computer, offering SVGA (super video graphics array) resolution that reduces glare and enables outdoor use. The computer is designed to work with both 16-bit and 32-bit pen support, so IT can create faster mission-critical applications while still supporting older applications. A 56Kbps modem



is built in, along with two Type II PC card slots (or one Type III PC card slot). The 2300 runs Windows 95, 98 or NT Workstation 4.0 and features a 233MHz Pentium MMX processor, a ruggedized 4.1GB hard drive, up to 96MB of memory and multiple connectivity options (infrared, serial, monitor, parallel, audio, keyboard, mouse, USB, floppy drive and port replicator). Single-unit list price is (gulp) \$4,485.

At the same time, Fujitsu has announced the availability of its **Point 1600** pen computer, a \$3,375 unit featuring a 10.4-inch SVGA display, dual pen support and ruggedized construction. For more information on either computer, call 408 982-9500 or visit www.fpsi.fujitsu.com.



use **IT** to sell more.

How can IT strengthen your sales effectiveness and customer service? Call Keane. Our Customer Relationship Management solutions fully integrate your front office processes to help you maximize the value of your customer relationships. The results: Increased sales and revenues. Improved profit margins. And stronger customer loyalty. Keane's solutions combine expertise in operations improvement, project management and application software. Let Keane help you gain greater value from IT.

1-888-KEANE-44
www.keane.com



we get **IT** done.



INDEX

Page numbers refer to the first page of the article(s) in which the company is mentioned. This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

Company Index

Abbott Laboratories Inc.	88
Active Software Inc.	72
Aladdin Knowledge Systems Ltd.	20
Aliroo Ltd.	20
American Express Financial Advisors Inc.	66
Apple Computer Inc.	78
Ayers Group, The	32
B2B Technologies LLC	66
BEA Systems Inc.	72
BellSouth Corp.	78
BMG Entertainment	38
Bristol Hotels & Resorts	38
Checkpoint Software Technologies Ltd.	20
Chordiant Software Inc.	54
Clarify Inc.	54
Compass America Inc.	54
Computer Associates International Inc.	72
Concur Technologies Inc.	78
Constellar Corp.	72
Corning Inc.	38
DataChannel Inc.	72
Delphi Group, The	66
Digital Agility Inc.	66
E-Trade Group Inc.	78
Enron Oil & Gas Co.	20
Fidelity Investments	78
Finjan Software Ltd.	20
Flowersandgifts.com	54
Foot Partners LLC	38
Forrester Research Inc.	72
Fujitsu Personal Systems Inc.	78
GartnerGroup Inc.	38
GE Capital Consulting	20
Genesys Telecommunications Laboratories Inc.	54
Glenayre Western Multiplex	78
Harlequin Inc.	78
Heineken USA Inc.	66
Home Box Office	20
IBM Corp.	72
InfoRay	20
Intelsat	38
Interactive Intelligence Inc.	54
International Data Corp.	16
JM Lexus	78
Knowledge Testing Enterprises Inc.	20
LR Group, The	38
Meta Group Inc.	20
Metropolitan Life Insurance Co.	20
Microsoft Corp.	72
NasTel Technologies Inc.	72
National Car Rental System Inc.	54
NEON Inc.	72
NetDynamics Inc.	72
NetIQ Corp.	72
Netscape Communications Corp.	72
Nuance Communications Inc.	78
Oracle Corp.	72
Parlance Corp.	78
PeopleScape Inc.	32
PeopleSoft Inc.	66
Phonetic Systems Inc.	78
Progressive Corp., The	20
Registry Magic Inc.	78
Reliant Data Systems Inc.	72
Rockwell International Corp.	54
Russell Reynolds Associates Inc.	32
Saga Software Inc.	72
SAP AG	54
Sears, Roebuck and Co.	78
Security-7 Ltd.	20
Siebel Systems Inc.	54
Siemens Information and Communications Networks Inc.	66
SpeechWorks International Inc.	78

Sprint PCS	54
TAC Worldwide Companies	32
Technology Solutions Co.	54
Thomas Cook Group Ltd., The	54
Tibco Software Inc.	72
Time Inc.	20
TMA Associates	78
Treacy & Co. LLC	38
United Airlines Inc.	78
United Management Technologies Inc.	38
Universal Leaf Tobacco Co.	38
Vantive Corp., The	54
Via World Network LLC	78
Visio Corp.	78
Vitria Technology Inc.	72
Wild File Inc.	78
Xerox Corp.	20, 38

Advertiser Index

*Denotes Section 2 Advertisers

Axiom Corp.	47*
American Power Conversion	69*
Aspect Telecommunications	57
AT&T	65*
BMC Software	27*, 29*
Brainstorm Group	79
Cable & Wireless	59*
Chubb Computer Services	87
CIO Communications Inc.	21, 53*, 68A, 69, 76*
Cognos Inc.	41*
Compaq Computer Corp.	5
Computer Associates Intl. Inc.	C4, C4*, 22*, 47
Compuware Corp.	44
Comsat World Systems	5*
Corepoint	18
Dataware Technologies	81
DLTape Systems	13*
Dun & Bradstreet	45*
Ernst & Young LLP	6
Executrain Corp.	83*
Gateway	59
Hewlett-Packard Co.	2*, 20A, 30, 52
Hirsch Electronics	35
Hummingbird Communications	83
HyCurve	10*
IBM Corp.	29, 42*, 64
IDG	48*
IMR Inc.	71*
Inacom Corp.	24, 52A*
Intecom	36*
INS	C2 Flap*, 9*
JBA	75
Keane Inc.	85
Kronos Inc.	25*
Lotus Development Corp.	16*
Lucent Technologies Inc.	19*
MCI Communications Corp.	17
MicroFocus	60
Microsoft Corp.	2
Netopia	77
Oracle Corp.	49, 51
PC Expo	85*
Peoplesoft Inc.	C2*
Peregrine Systems	73
Planview	75*
Powerware Corp.	9
Quantum Corp.	40
Quintus	63
Qwest	61*
Rational Software Corp.	C3
Remedy Corp.	15*
reSource Partners	81*
Ricoh Corp.	21*
Right Fax	67*
SAI Institute Inc.	23
Schmidt Vogel & Partner	79*
Senco Inc.	57*
Silicon Graphics Inc.	27
Sprint	36
55&C Technologies Inc.	C3*
Storagetek	10
Sun Microsystems Inc.	15
Syntel	73*
Tenfold Corp.	33*
Toshiba America Inc.	C2
Unisys Corp.	13
U5Web Corp.	33
Vantive Corp.	35*
WindingRoad.com	77*
Work Management Solutions	51*
Xerox Corp.	6*

IDG is the world's leading IT media, research and exposition company. Founded in 1964, IDG had 1997 revenues of \$2.05 billion and has more than 9,000 employees worldwide. IDG offers the widest range of media options which reach IT buyers in 75 countries representing 95 percent of worldwide IT spending. IDG's diverse product and services portfolio spans six key areas including print publishing, online publishing, expositions and conferences, market research, education and training, and global marketing services. More than 90 million people read one or more of IDG's 290 magazines and newspapers, including IDG's leading global brands—*Computerworld*, *PC World*, *Network World*, *Macworld* and the Channel World family of publications. IDG Books Worldwide is the fastest-growing computer book publisher in the world, with more than 700 titles in 38 languages. The "... For Dummies" series alone has more than 50 million copies in print. IDG offers online users the largest network of technology-specific Web sites around the world through IDG.net (<http://www.idg.net>), which comprises more than 225 targeted Web sites in 55 countries worldwide. International Data Corporation (IDC) is the world's leading provider of information technology data, analysis and consulting, with research centers in over 41 countries and more than 400 research analysts worldwide. IDG World Expo is a leading producer of more than 168 globally branded conferences and expositions in 35 countries including E3 (Electronic Entertainment Expo), Macworld Expo, ComNet, Windows World Expo, ICE (Internet Commerce Expo), Agenda, DEMO and Spotlight. IDG's training subsidiary, ExecuTrain, is the world's largest computer training company, with more than 230 locations worldwide and 785 training courses. IDG Marketing Services helps industry-leading IT companies build international brand recognition by developing global integrated marketing programs via IDG's print, online and exposition products worldwide. Further information about the company can be found at www.idg.com.

Editorial, Advertising and Business Offices: 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208, (508) 872-0080. **Postal Information:** CIO (ISSN 0894-9301) is published in two sections, semimonthly; and as a combined issue December 15/January 1 by CIO Communications Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208. Periodicals postage paid at Framingham, MA, and at additional mailing offices. **Reprints:** Copyright 1999 by CIO Communications Inc. All rights reserved. Reproduction of material appearing in CIO is forbidden without written permission. Send all reprint requests to Permissions Department, CIO, 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208. **Photocopy Rights:** Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by CIO for users through the Copyright Clearance Center (CCC), provided that the base fee of \$3.00 per copy of the article, plus \$.50 per page is paid directly to Copyright Clearance Center, 27 Congress Street, Salem, Massachusetts 01970. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: ‡. **Subscriptions:** Address inquiries to CIO, 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208; 800 788-4505. CIO is free to qualified information executives. To all others the one-year basic rate is \$89 for U.S. and Canada, \$125 to foreign countries (payable in U.S. funds only). The single copy price is \$8. Please allow 4 to 6 weeks for new subscriptions to begin. **Change of Address:** Please fax a copy of current subscription label along with new address to (508) 879-7899. Allow 4 to 6 weeks for change to take effect. **Postmaster:** Send change of address to CIO, P.O. Box 489, Northbrook, Illinois 60065-9816. Printed in the U.S.A.

IT Staffing On Your Mind?

High staffing costs.
High turnover rates.
The IT labor shortage in general.
It's on your mind a lot these days.
Until now.

Chubb Computer Services provides innovative
IT training and staffing solutions.

For example, we can introduce you to a
unique source of IT talent you can't find
anywhere else. Or we can identify the skills
gap in your IT organization and help you
execute a cost-effective retooling program.
Our programs in recruiting, training, staffing,
retention, and skills retooling are
unparalleled, and could be just what you need
to get your IT organization off of your mind and
onto the projects your company demands.

Let us show you how we can help.
For a free White Paper on "*Breaking the
High Cost of IT Staffing*", call:

1-888-CHUBB-10

Or visit our web site at ccs.chubb.com

 **Chubb
Computer Services**
IT Training & Staffing Solutions

Regional offices located in:

New York • New Jersey • Pennsylvania • Virginia • Georgia • Texas • Illinois • California • Massachusetts

Chubb Computer Services is a wholly-owned subsidiary of the multi-billion dollar Chubb Corporation.

ShopTalk

Abbott Laboratories' Lee Jones on Being a Nontechie CIO

What challenges did you face coming into the IS leadership role with a business rather than an IS background?

Some IS managers were hostile. They'd ask, "How do you know what needs to be done?" I'd say, "If I need to become an expert in technology, then I must have the wrong people in my organization.... I need you to tell me what we need to do." They believed I was brought in to do a hatchet job on IS. There were a fair number of people who elected to change jobs.

How did you get past that initial ill will?

I met with the IS staff in groups of 8 to 10 people and I asked their opinions: How would they change things if given the chance? They knew I had been successful in other areas of Abbott so they began to open up. I also brought in people from the outside to talk with them—gurus, consultants and analysts. When they heard the outside opinions, they saw that the business arguments for change and the problems with the status quo were too strong to fight.



Spotlight On:

C. Lee Jones, vice president of information management and technology for Abbott Laboratories Inc.'s pharmaceutical products division, Abbott Park, Ill.

- **Line of Business** Pharmaceuticals
- **Bio** An MBA who has managed manufacturing, R&D, clinical research and marketing units in pharmaceuticals; became VP of information management and IT for Abbott's pharmaceutical division in 1996 after working in the business side for six years
- **Challenges** Helping business execs understand the ways technology will affect them

What do you bring to the equation then?

I bring the ability to coalesce all that inside and outside information, build support for a plan and match it to the perspective of the client—because I used to be a client. Like any support organization, IS tends to think of itself as a supportive follower of the business. That's true, but it creates a passive mentality. IS should listen to the business, but it should also help the business shape strategy. For example, our clinical research people have struggled with sharing data because it has always meant building private, proprietary solutions. We said, "Don't stop thinking about the possibilities. We can create Internet-browser-based solutions to work around the problems."

Unfortunately, in many

companies it's difficult for IS to take on a leadership role. Business schools are still teaching students that IS is a cost to be controlled, otherwise it will eat you alive. When IS tries to push solutions in that kind of environment, it often gets beaten down.

What advice do you offer CIOs who have felt beaten down?

Don't give up trying to communicate with the business. If someone says e-commerce is a waste of money, for example, I won't leave it at that because nothing will change. If I work to create a relationship and keep passing snippets of information about how our competitors are using e-commerce, then I'm keeping the door open.

We also ask them what they think it will take for IS to deliver a solution. They may dump on IS, but they're glad that someone asked

their opinion. You get psychological buy-in from that. It's a variation of what a salesperson says out in the field: "What's it going to take to get your business?"

Is there a project that has benefited from your experience as a client?

Our enterprise document management strategy. Different client groups wanted independent systems because no one wanted to change their own processes. We did focus group sessions and pilot projects to show that we needed to create common business processes before we could start implementing technology. Soon, the clients started championing the common processes. It wasn't revolutionary; it just wasn't forced conscription to the standards.

—Christopher Koch

HAVEN'T YOUR ANALYSTS, DEVELOPERS, AND TESTERS
SPENT ENOUGH TIME IN SOLITARY CONFINEMENT?

Unify Your Teams
With Rational Requisite[®]Pro.

When people work in isolation, teams fail. Unified teams succeed. Rational RequisitePro unifies teams by capturing and communicating the changing requirements of your project. Integrated with Microsoft[®] Word to simplify your team's use, RequisitePro optimizes each person's understanding of customer needs, system specifications, and test requirements. RequisitePro integrates with other Rational products and supports commercial databases to scale to your team's size. Get your teams talking. Download a free white paper on requirements management today.

RATIONAL
SOFTWARE

UNIFYING SOFTWARE TEAMS



1-800-728-1212 • www.rational.com/tools/rq.html

Rational the Rational logo and RequisitePro are trademarks or registered trademarks of Rational Software Corporation in the United States and in other countries. Microsoft is a registered trademark of Microsoft Corporation. © 1998 Rational Software Corporation. All rights reserved.

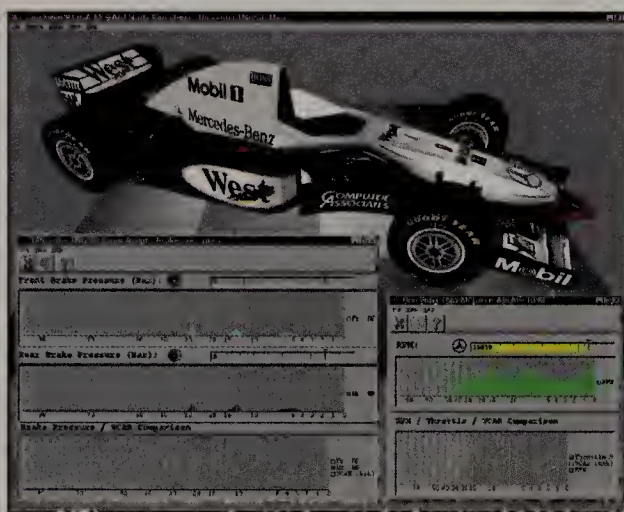
Look What Unicenter Is Managing Now.



When we say Unicenter® can manage anything, anywhere, we mean it.

As this Formula One MP4/12 car races along at speeds in excess of 210 miles per hour, pulling G forces that rival a jet fighter plane, it broadcasts hundreds of megabytes of critical telemetry data back to the pit crew. They use it to make split-second decisions that often mean the difference between victory and defeat.

Unicenter TNG® helps the West McLaren Mercedes race team—one of the winningest teams in Formula One history—interpret this vital information through Unicenter TNG's sophisticated manager/agent technology, and a revolutionary 3-D interface. Everything that's happening, from the pressure on the left rear brake pad to the downforce of the chassis set-up, can be monitored and managed through Unicenter TNG.



Unicenter TNG's Real World Interface™ analyzes critical performance measures such as front and rear brake pressure impact on car speed.

By looking at this data in a whole new way, the West McLaren Mercedes race team can now make smarter decisions in less time. In a business where hundredths of a second can mean the world, Unicenter TNG is making a difference.

This is just one example of how Unicenter TNG today is managing all kinds of non-IT devices for all kinds of organizations. Call us to find out how Unicenter TNG can help you be more competitive.

**Join Us At
CA-World 1999
July 18-23. Call
1-877-CAWORLD.**

**COMPUTER
ASSOCIATES®**
Software superior by design.

Unicenter TNG®

CIOs Talk About E-Commerce

The CIO Wrapsheet asked IT executives what their e-commerce strategies are and how they plan on implementing them. Here's what they had to say:

A We began an online trading strategy in 1985 with a DOS-based product. With our needs constantly evolving, we have been remaking our infrastructure since the early 90's. By staying ahead of the curve, we are able to move quickly in order to respond to the demands of our customers. In fact, since we use the same back end for all of our technical systems, we were able to develop and launch our web program in about eight weeks. Even though we offered online trading early on, we have been astounded by the growth of the Internet and in particular, the volume of online trading in the past few years. In fact, we just completed our second upgrade in six months to our middleware which doubled our capacity. We are excited to see where the Internet will take us next, and by looking forward and keeping our infrastructure capacity ahead of the demand, we will be able to react quickly to the oncoming changes.

Dawn Lepore
CIO

Charles Schawb

A We expect e-commerce to become a very important part of our business in the future. We had spent the past few years implementing a global SAP system that includes an e-commerce foundation platform. All of the applications are Web-based and the infrastructure is easy to support. Once we were ready to initiate our e-commerce plans, we could just activate it through SAP without having to write any new programs. We were able to have our program up and running within weeks instead of month. Right now, we are using it in our after-market arena with many of our smaller distributors but we do have plans to expand it in the future.

Jeff Smith
CIO

Allied Turbocharging Systems

A We are in the early stages of our e-commerce strategy. Right now, we offer a comprehensive Web page that provides traditional information about our company and our products. We also have parts, service and dealer info-rmation available, as well as information on the companies with whom we have strategic alliances. We have recently taken on an initiative with the goal of being the information portal for the entire trucking industry. We have partnered with Microsoft to develop the applications for this project. We are also working with outside consulting experts, debis IT Services and DaimlerChrysler Research & Technology on the strategic development.

Rob Hassell
General Manager of IT
Freightliner Corporation

Congratulations to the Top 5 CIO Harvey Study Winners



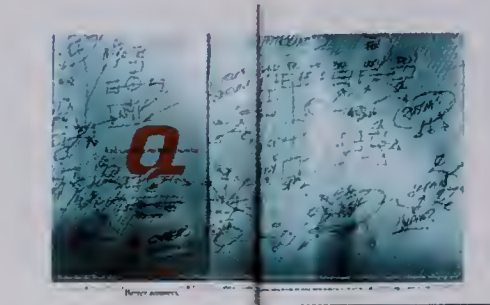
1) Dell Computer Corporation
Agency: Goldberg Moser O'Neill



2) Kingston Technology
Agency: In house



3) StorageTek
Agency: Martha Felt Group



4) Compaq Computer
Agency: DDB Needham Worldwide, Inc.



5) Hewlett-Packard
Agency: Saatchi&Saatchi

Does your ad catch the attention of *CIO* readers? If you would like to know if your best prospects and customers remember seeing your ad, be sure to advertise in the 1999 Harvey Study issues.

CIO Issue Dates:	July 1	August 15	December 1
CIO Closing Dates:	May 24	July 8	October 21

All full-run, one page or larger advertisers get a comprehensive report on the effectiveness of their advertisement, as well as verbatim comments from readers.

For more information, please contact Mike Masters at (973) 244-5510 or masters@cio.com.

*CIOs & CXOs Partnering for Success -
Continued from Page One*

Top Priorities for CIOs

1. Internet and World Wide Web
2. Electronic Commerce
3. Network Security
4. Computer-Supported Collaborative Work
5. Knowledge Management
6. Broadband Networks
7. New User Interface Technologies
8. Encryption and Electronic Signature

Source: Critical Issues of IS Management, CSC, 1998.

CIO KnowPulseSM Poll After Year 2000, what emerging technology will you focus on?

1. E-commerce
2. Internet/Web
3. Data Warehousing
4. Data Management

Source: CIO Enterprise Value Retreat, January, 1999.

"The internet is growing faster than any other medium in history. It took radio 38 years to aquire 50 million listeners. Television took 13 years to get 50 million viewers. The internet achieved 50 million users in just 4 years."

--*Net Future - the 7 cyberrends that will drive your business, create new wealth, and define your future.*
by Chuck Martin.

What's New at CIO Communications

CIO Communications Expands Custom Research Offerings

New Products Created to Help IT Vendors Improve Their Sales Efforts

CIO Communications has introduced an innovative custom research service designed to help high-tech company salespeople gain access to hard-to-reach CIOs and shorten their selling cycles.

The newest addition to CIO Communications' custom research product line—Executive Intelligence Research—was developed in response to high-tech company marketers looking for ways to get face-to-face meetings with CIOs. According to Cathy O'Leary Hayes, senior vice president of marketing for CIO Communications, "Advertisers want to connect with CIO magazine readers in 'out-of-the-box' ways. They have come to us and asked 'how can we get the CIO to meet our salespeople?' The answer: Have your salespeople present compelling research that will help CIOs make smarter buying decisions and manage/implement IT strategies within their organizations."

Executive Intelligence Research is based on the premise that executives use best practice data and analysis to make purchasing decisions. The CIO wants to know how a particular technology affects his or her business and how to best take advantage of it. "So to help our advertising customers forge meaningful relationships with our readers, we've created a research product line based on IT best practices—a credible third party assessment that an IT vendor can present to a CIO. We've always been in the business of opening doors for our partners and this is just one more way for an IT vendor to get a foot in the door with the CIO," exclaimed Joe Levy, President & CEO of CIO Communications.

Depending on the vendors objectives and budget, Executive Intelligence Research comes in a variety of formats—an Issue Analysis, a Leading Practice Study, an Issue Survey, or an all-inclusive Consultant's Toolkit. For a full descriptions of these Executive Intelligence Research products, call your regional sales representative or Lisa Wilson-Wirth at 508 935-4068.

These new product offerings complement the current CIO research products: Marketing Research Services and the CIO ConsultWare Series.

Sales Staff Additions to CIO Magazine

CIO has added several new employees to our sales offices to help you strategically develop your integrated marketing plans with CIO:

- Lucia Bravo (lbravo@cio.com) has joined the San Francisco team as a new Account Executive
- SaraJane Robinson-Retondo (sarajane@cio.com) has come aboard the San Francisco office as an Advertising Sales Assistant
- Sounthaly (Tune) Outhavong (outhavong@cio.com) has been promoted from Sales Associate to Account Executive in Austin

• Sandra Beckmeier (sbeckmeier@cio.com) is a new addition to the Austin office as a Sales Associate

• Ellie Schwab (eschwab@cio.com) is a new Account Executive in the New Jersey office

New Position Created To Meet Custom Marketing Needs of CIO Customers

CIO Communications is proud to announce the appointment of Frank Genovese as Vice President, Business Development. Frank has been with CIO for almost 8 years and was most recently head of the Eastern Region. This position was created to address the needs of clients who are looking for customized integrated marketing solutions. Clients will be presented with highly customized proposals based on a thorough understanding of their business challenges. These custom solutions would integrate CIO Communications' offerings such as executive programs, custom publishing, online, research and others. For more information about creating a customized marketing program, call 973 244-5500.



CIO Executive Programs

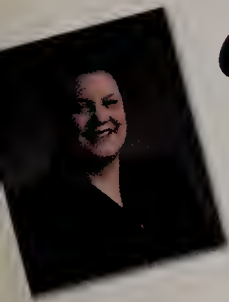
Sponsorships for the CIO-100 Symposium, to be held August 15-18, 1999 at the Hotel Del Coronado in San Diego, California, have SOLD OUT. The annual program will recognize leadership in the use of technology, information management and organizational development. The outstanding achievements of 100 industry-leading enterprises will be honored at a special black-tie awards ceremony. For more information on sponsoring future CIO events, contact Lynda Rosenthal at (508) 935-4273 or email lyndar@cio.com.

THE CIO

WrapSheet

Your Guide to Marketing to Information Executives

Sound Bites



“When Datalink decided to develop a supplement on information management strategies targeted to CIOs, we were

confident the best venue to reach that audience was *CIO* magazine. Not only is *CIO* respected and well-read industry wide, their custom publishing division offers a tailor-made, turnkey approach, enabling us to deliver a high impact, strategic message. Our choice of publishing partners was important because we wanted a high-level educational piece, building upon Datalink's expertise as a leading information management solutions provider. We also wanted a piece with long shelf life. To leverage our investment, we use the supplement as a multipurpose marketing tool. The expertise *CIO* custom publishing provided Datalink included two critical elements – experienced writers who understand technology issues and a responsive approach to our needs.”

Alicia Thompson
Marketing Communications
Datalink

The Road to Mutual Understanding: CIOs and CXOs Partnering for Success

When *CIO* magazine launched 11 years ago, the title created some controversy. “Many people felt we were giving the CIO role an unwarranted elevation in status,” remembers Lew McCreary, editorial director of *CIO* magazine. Over the years, the role of the CIO evolved and the magazine's popularity grew. “CIOs learned to speak the language of business, and as a result, they were able to educate the other CXOs on how they could work together to create profitable business opportunities through technology,” says McCreary.

G. Patrick Thompson, vice president and CIO of Turner Industries has also seen the shift in the way CIOs and CXOs work together. “Over time, I have seen more acceptance of technology as an integral part of our company's business strategy,” says Thompson. “We meet regularly with our business line managers so we can understand their goals and align our IT strategies with them. Because of this partnership, our IT decisions actually become part of the business strategy.”

With this new mutual understanding, CIOs and other CXOs began to work together to successfully leverage technology for company profit. Technology was no longer viewed as only a way to improve efficiency through infrastructure, but it was seen as a way to get to market faster,

assimilate new business, and make the company money. “Because the competitive nature of our business has changed, we must leverage technology to our advantage in order to stay ahead of the competition,” says Rob Hassell, general manager of information technology at Freightline Corporation. “That is why it is important that our IT organization is flexible and nimble so we can implement

changes as the business demands it. We want to be an enabler, not an inhibitor to our business.”

Although progress has been made, CIOs continue to face ongoing challenges. “One of the biggest frustrations IT executives face is finding funds for infrastructure

improvements,” says McCreary. “With more applications being designed to give companies a competitive edge, CIOs often have to build up the infrastructure in order to do the sexy stuff. Although many CXOs have become more enlightened, it can still often be a challenge.”

With the year 2000 closing in, IT managers are looking beyond their Y2K plans and planning for the future. Many are turning their attentions to the Internet and what the future of e-commerce holds for them. See the “CIOs Talk About” column on page 3 to better understand CIOs' current priorities and concerns.

Continued on page 3

In this Issue

CIOs and CXOs Partnering for Success.....	1
Peer2Peer: Target Marketing.....	2
Q&A with Ellen Romanow.....	2
CIOs Talk About E-Commerce.....	3
What's New at CIO Communications....	4



Target Marketing: Not Necessarily a Stab in the Dark

by Jonathan James

There is an old advertising adage that states: "I know 50% of my advertising is working and the other 50% is not, I just don't know which is which..." So, how do marketers improve the targeting of messages without spending a small fortune on formal concept testing?

When Syntel, a \$168 million applications management and IT consulting firm, began preparations to launch a branding campaign that included print advertising in CIO magazine, we struggled with this very question.

We elected to take matters into our own hands to increase the likelihood that our message was on target with CIOs and senior IT executives. Working with Chicago-based Lighton/Coleman Advertising, we created three very different concepts for the print campaign. Next, we talked with our clients at Allied Van Lines, Borders Books & Music, and Yellow Freight and enlisted their cooperation in evaluating the three concepts. We also involved the marketing team at CIO magazine because, who better to get input from than the team that works with leading CIOs every day?

The concept boards were sent to each participant and then we held conference calls individually to discuss each party's reaction to the different creative concepts. The conversations were loosely structured to gather specific feedback and surprisingly, all parties felt the same concept stood out in terms of overall design, messaging and positioning for Syntel. Then, to improve our ability to track response to the new print campaign, we created a unique URL on the Web address listed on the ads. The URL points to a "jump page" or sub-section of our corporate Web site. This achieves two things. First, it provides targeted information to CIO magazine readers about Syntel. By accessing the jump page, readers gather further substantiation of the claims we make in the print ads. This site also contains links to Syntel's main Web page as well as to CIO.COM's Outsourcing Research Center (which Syntel is exclusively sponsoring). Secondly, the jump page enables us to evaluate traffic flow from the print campaign to

the unique URL, giving us a better handle on how effectively the messages are pulling in readers.

There is no way to completely ensure that your branding efforts are 100% on target, but by utilizing as many resources as possible, you can build in some confidence that you've taken steps to get close to your initial objectives.

.....
Jonathan James is the Director of Marketing & Investor Relations at Syntel, Inc.
.....

Q&A with Ellen Romanow



Ellen Romanow recently joined CIO Communications as vice president and general manager of the new custom publishing division.

Recently, we talked with Ellen about the trends she is seeing in the custom publishing arena.

CIO: *What is the newest area of interest in custom publishing?*

Romanow: *Many companies are looking beyond traditional supplements to things like corporate publications. Companies are realizing the importance of communicating with employees, customers or other key audiences on a regular basis. That is why the concept of a corporate publication is so appealing. Marketers understand that business professionals value magazines as credible sources of information. And the bond between the reader and publication is cultivated over time. By consistently sharing your message in a medium your customer trusts, you will strengthen your customer relationships as well as increase sales.*

CIO: *Can you give us an example?*

Romanow: *Although it's a fairly new concept, these types of corporate publications have been proven successful. For example, we have developed a program for one of the leading industry providers. The program includes an 8-time a year magazine that is sent to customers, qualified prospects and business partners. It's designed to keep them informed about new products and other product information to encourage upgrading, adding to or enhancing of their current installation. Overall, the publication is used to retain customers and grow revenue. The response has been overwhelming. 91% of the readers indicate that the publication helps them with their purchase decisions. In fact, nearly \$28M in sales were generated from leads and from special offers in the publication. The program has been so successful, the company is looking to do a second publication to help reposition their corporate image.*

CIO: *Why don't more companies just create their own magazine internally?*

Romanow: *Some have tried and found it's not cost-effective. Often, internal marketing staffs are working on many projects and don't have the time to devote to a publication that is produced several times a year. Also, if you are going to publish a magazine, you want it to look and sound like a magazine not like a marketing brochure. One of the benefits of outsourcing is that you can utilize the experience of professionals well-versed in publishing without the overhead of an internal staff but still maintain full control of the message.*

For more information on CIO's custom publishing division, contact Ellen Romanow at 508-935-4796 or at eromanow@cio.com